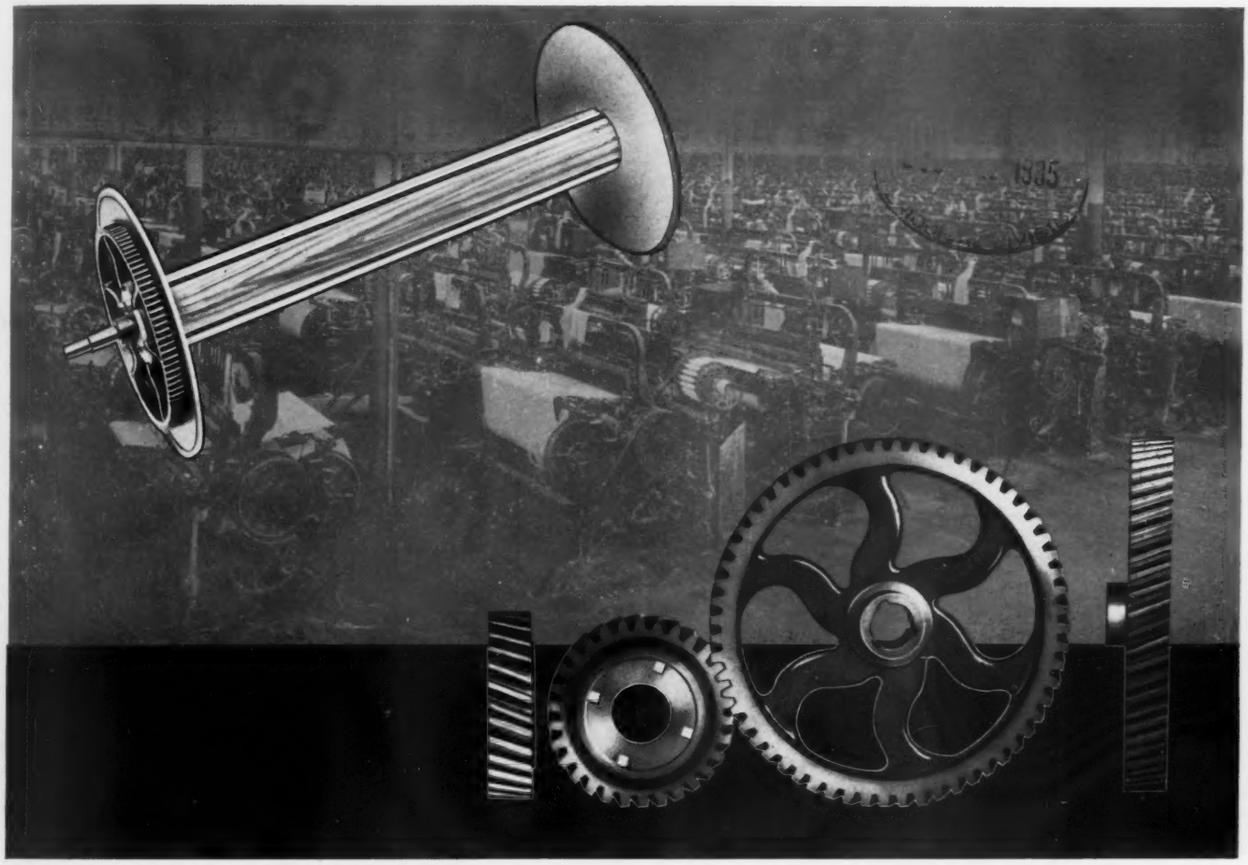
NOVEMBER, 1935

COTTON

Serving the

TEXTILE INDUSTRIES



For Greater Efficiency In the Weave Room—

Today there is a greater premium than ever for modern efficient equipment. Many mills are finding West Point spiral gears and West Point loom beams valuable aids in securing continuous and quality production in the weave room.

West Point Spiral Gears

These gears, with three-tooth contact at all times, insure smooth, noiseless operation and decrease the shock. They eliminate backlash. *Write us for more information.*

West Point Loom Beams

Bad selvage can be eliminated by the prevention of high and low places on edge of warp with our true running beams. *Have us furnish details.*

● ***Also manufacturers of special machinery, cloth room machinery, textile machinery repair parts, bobbin gears, spur and bevel gears in iron, steel and brass.***

WEST POINT FOUNDRY & MACHINE CO.

(Batson-Cook Company, Owners)

WEST POINT, GEORGIA

One hypodermic injection every day for two weeks. Thus simply and quickly are thousands each year made immune to the dread disease of rabies. However Louis Pasteur worked steadily for FIVE YEARS on this one problem (to say nothing of 15 or 20 years of previous experience), before he announced his now famous "treatment" to the world.

EXPERIENCE MADE BOTH POSSIBLE

Great achievements in any field, once recognized, are always taken for granted, with little thought of the many years of research and experience that made them possible.

Franklin Process Colors are now specified or ordered as a matter of routine by a majority of converters and manufacturers of cotton yarn dyed fancies. Because these colors are dyed in Franklin Process PACKAGE Dyeing Machines, many give full credit for the superiority of Franklin Process Service to the .TYPE of MACHINE, and assume that any dyer, using package dyeing machines, can match Franklin Process achievements.

Package Dyeing machines (properly designed) are undoubtedly a big advance over older types of yarn dyeing equipment. However they are only partly responsible for Franklin Process leadership. Back of this leadership, to an equal extent, are 25 years of organization, research and good management.

As a result of these activities, Franklin Process offers not only superior equipment, but also a superior knowledge of dyestuffs, of the methods of application, and of market requirements. Hence customers frequently get better colors within their price range, or more marketable colors, both as to price and quality, than would otherwise be the case.

Experience, above all else, has made such service possible. It can not be duplicated overnight. Achievement is always born of experience. Therefore if you want the best in yarn dyeing service, from all standpoints, look to—

Custom Yarn Dyeing

Natural Yarns Colored Yarns

Glazed Yarns

Dyeing and Processing Machines

THE COLORED YARNS IN THIS FABRIC ARE FRANKLIN PROCESS DYED FASTNESS TO WASHING AND LIGHT

When you pay for colors of KNOWN fastness, advertise the fact. Use the Franklin Process Fast Color Label. Ask us about it.

FRANKLIN PROCESS

ESTABLISHED 1910

Pioneers in Package Dyeing

PROVIDENCE • PHILADELPHIA • GREENVILLE • CHATTANOOGA • N. Y. REPRESENTATIVE, 40 WORTH ST.

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GEE Whizz-ikers! I FORGOT

That Darn
Banana Peel

A Too Active Forgetery

May Take Your Mill Over Needless Bumps

DON'T FORGET that a New DUTCHER TEMPLE FOR RAYON Holds the Cloth Firmly Without Making Temple Marks

DON'T FORGET that DRAPER SHUTTLES Are Best for Draper Looms

DON'T FORGET that the STIMPSON TWIN GROOVE SHUTTLE with the Patent TWIN THREAD TRACK Reduces Weaving Faults from Misthreads and Filling Breaks

DON'T FORGET that DRAPER BOBBINS Fit Draper Shuttles

DON'T FORGET that a Draper Bobbin with STIMPSON PATENT BUSHING Never Rises or Slips on a Stimpson Patent Clutch Spindle

DON'T FORGET that the STIMPSON CLUTCH SPINDLE Spins Even Yarn Packages—More Yarn on Your Bobbins—a Properly Placed Bunch for Feeler Looms—and Insures Better Weaving

DON'T FORGET that the NEW DRAPER SPINNING RING Starts Better—Runs Better—Lasts Longer

DON'T FORGET that MacCOLL THREAD GUIDES are Best Yarn Cleaners

Don't Forget That Only the Best is Good Enough for Your Mill

DRAPER CORPORATION

Atlanta Georgia Hopedale Massachusetts Spartanburg S C

WHAT ABOUT THE "PROCESS TAX" *that your machines are collecting every day?*

HERE IS A TAX that eats the heart out of profits — excessive power costs, high maintenance expense, machine failures and spoilage!

But you don't have to pay it — unless you want to. Try gearing your machines up to the latest lubricating practices. You will find that the selection and use of the proper lubricants will go a long way toward controlling many of your cost "unknowns."

In this work, Texaco has helped many mills. Texaco lubrication engineers give your men a friendly, helpful cooperation that enables them to bring about substantial savings and find important operating economies. When the Texaco representative calls, let him tell you about what Texaco has done in plants similar to yours.

THE TEXAS COMPANY · 135 East 42nd St., N.Y.C.
Nation-wide distribution facilities assure prompt delivery

Photos courtesy
The Erwin Cotton Mills Co.

TYPICAL REPORTS—(from a Texaco engineer's note-book)

LOWER MAINTENANCE · In a Massachusetts mill, maintenance costs were reduced a third. Lubrication costs were lowered. The management reports that the selection and use of Texaco Lubricants are responsible for these operating economies.

POWER ECONOMIES · A mill in Georgia reports that lubrication, maintenance, and power costs, have been substantially reduced through changing to Texaco Lubricants and improving lubricating practices.

LESS SPOILAGE · Another Massachusetts mill reports: "Texaco Lubrication of our comb boxes has resulted in cooler-running boxes, lowered maintenance costs, and has practically eliminated the throwing from boxes. Texaco Lubricants and engineering service have saved us considerable expense this year."

TEXACO

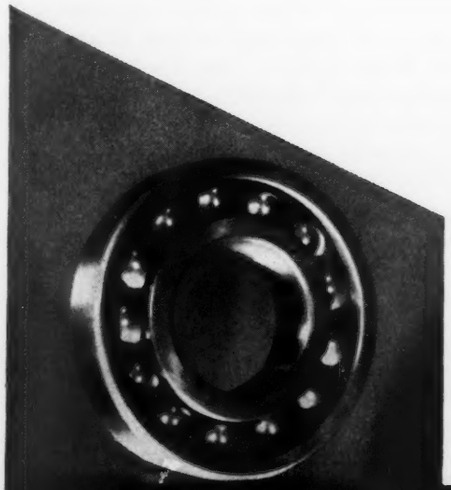
TEXACO *tested* LUBRICANTS

REFINERY TESTED FOR UNIFORMITY • • • SERVICE TESTED FOR ECONOMY

MACHINES requiring terrific speeds of 50,000 revolutions per minute, and more, can use successfully only the very finest, most efficient anti-friction device—the ball bearing—a New Departure.

It is in such installations that the extremely fine design, material and workmanship of New Departures are proved most dramatically.

However, they add long life and economy of operation to *any* machine. New Departure engineers are at the service of manufacturers everywhere in planning bearing installations. The New Departure Mfg. Co., Bristol, Connecticut. E. M. Potter, 913-1st National Bank Bldg., Charlotte.



NEW DEPARTURE
BALL BEARINGS

Nothing Rolls Like a Ball

TUFFER FOUNDATION QUALITY

Can't be Hurried!

Expert craftsmen build Tuffer Foundation with the rule-of-thumb method that comes from long experience. Each batch of the famous Tuffer oil-proof glue is mixed by knowledge instead of theory. Tuffer Foundation builders know the correct amount of each ingredient to use, and the correct time for stirring in heated kettles. They know by *feel* when Tuffer glue is the correct consistency.

With eagle-eye they inspect each inch of cloth before Tuffer Foundation is glued together. They scamper from top to ends of the gluing machine while cloth is being glued. The cloth must move at a certain speed to assure the correct set of the glue, and the glue must flow just so.

TUFFER CARD CLOTHING

When layers of fillers and outer cloths are glued securely, giant reels permit the foundation to dry slowly and evenly. ***That's why Tuffer Foundation is pliable*** and always hugs the cylinder.

After slitting to desired widths, samples from each roll are tested to withstand a strain four to five times greater than the job they must do. ***That's why Tuffer lasts so long.***

The quality of Tuffer Foundation (protected by U. S. Patent Number 1,773,783) and the craftsmanship in its building are evident at the condenser end where your product is coming through day in and day out over a long period of time. ***That's where Tuffer proves its quality.*** Tuffer Card Clothing from foundation to final inspection of each wire point is fabricated with extreme care with careful supervision by trusted craftsmen.

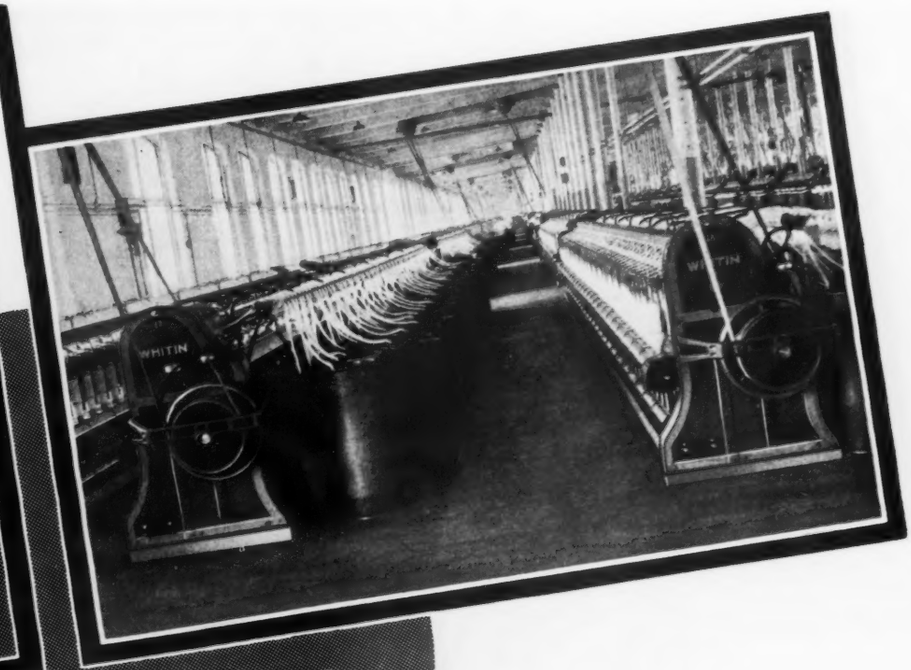
Proper equipment makes work easier for your carders, speeds up production and produces more profits. Write or telegraph the nearest office when you need new cylinders, flats or fillets.

HOWARD BROS. MFG. CO.

HOME OFFICE AND FACTORY: **WORCESTER, MASS.**

So. Plant: 244 Forsythe St., Atlanta, **Branch Offices:** Philadelphia, Dallas, Washington

Products: Fillets for Feed Rolls, Lickerins, Tumblers, Strippers, Workers, Doffers, Fancies, and Cylinders, Doffer Rings, Napper Clothing, Strickles, Emery Fillets, Burnisher Fillets, Top Flats Recovered and extra sets loaned, Lickerins and Garnett Cylinders from 4 to 30 inches and Metallic Card Breasts Rewired at Southern Plant. Midgley Patented Hand Stripping Cards and Inserted Eye and Regular Wire Heddles



Undisputed Leadership!

The WHITIN-CASABLANCAS SLUBBER

Standard Long Draft Roving System for Coarse Yarn Numbers

Twenty-Six Thousand Spindles in successful operation in this country. ● Feeding more than a quarter of a million Spinning Spindles.

No machinery investment you can make today will PAY for itself so quickly!

WHITIN MACHINE WORKS

CHARLOTTE, N. C. WHITINSVILLE, MASS., U. S. A. ATLANTA, GA.

D.A.
DRY AIR

LEAVES ITS MARK ON THE BALANCE SHEET

Enforced slowing up of machinery; static electricity; loss of regain; excessive dust and fly which slows up workers and deposits itself upon machinery and work in process; all are the results of uncontrolled dry air.

Not one of these items appears in your balance sheet. Nevertheless, their ill effects are indicated in the operating figures. The presence of Adequate Humidification means the elimination of these enemies of profitable operation.

Adequate Humidification is available to every plant through AMCO Engineering and AMCO Equipment. AMCO leadership in the field of humidification is built solidly upon 47 years of successful service to the textile industry.

AMCO

IDEAL HUMIDIFIER

Expertly engineered, this long service Humidifier is of a high capacity type. It meets special requirements in operating areas where high temperature and dryness of the air make adequate humidification difficult to maintain.

Catalog describing this and other AMCO Equipment is readily available.

IF IT'S A PROBLEM OF HUMIDIFICATION CALL IN THE AMCO ENGINEER

AMERICAN MOISTENING COMPANY

Established 1888

BOSTON, MASS. ATLANTA, GA.

PROVIDENCE, RHODE ISLAND

CHARLOTTE, N. C. GREENVILLE, S. C.

High Speed VERSUS *Slow Speed Warping*

Here is a comparison of two systems of warp preparation that shows the advantages of the Universal System of High Speed Coning and Warping—

SPOOLING

1 Spooler operators lose much time walking — the yarn speed varies.

2 Broken spools make waste yarn. Cracked spools make bad work.

3 Cramped position of operator's hands cause spooler kinks that make loom stops.

4 Small 1-lb. spools make trucking and creeling costs high.

HIGH SPEED WINDING

1 Winding operators have less walking time and a higher production because yarn speed is uniform.

2 Wooden cones can be handled easier and will reduce yarn waste.

3 Cones are stopped automatically so winding operator has both hands free.

4 Large 4-lb. cones saves 75% of trucking and creeling costs.

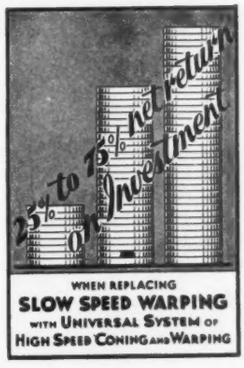
SLOW SPEED WARPING

5 Dead yarn on spools causes streaky warps.

6 Yardage clock on warper geared to small diameter roll cannot control yardage on beams uniformly.

7 Beams produced on slow speed warpers have slack selvedges.

8 Broken ends are hard to find. Lost and crossed ends cause loom stops.


25% to 75% net return on investment
WHEN REPLACING
SLOW SPEED WARPING
WITH UNIVERSAL SYSTEM OF
HIGH SPEED CONING AND WARPING

HIGH SPEED WARPING

5 Magazine cone creeling system provides fresh yarn, reduces inventory.

6 Yardage clock geared to large high speed driving drum—beams run out uniformly.

7 Fixed position of beam on high speed warper assures perfect selvedges.

8 Electrically controlled stop motion and powerful brake on high speed warpers eliminate lost and crossed ends.

IN 3 OUT OF 4 MILLS MORE NET RETURN

Universal System of High Speed Coning and Warping

UNIVERSAL WINDING COMPANY

BOSTON

NEW YORK · PHILADELPHIA · PROVIDENCE · SPRINGFIELD · UTICA · CHARLOTTE · ATLANTA

2504

SOME OF THESE SHOULD ALWAYS BE ON HAND IN EVERY COTTON MILL SUPPLY ROOM

Clean! Quiet! Cool!

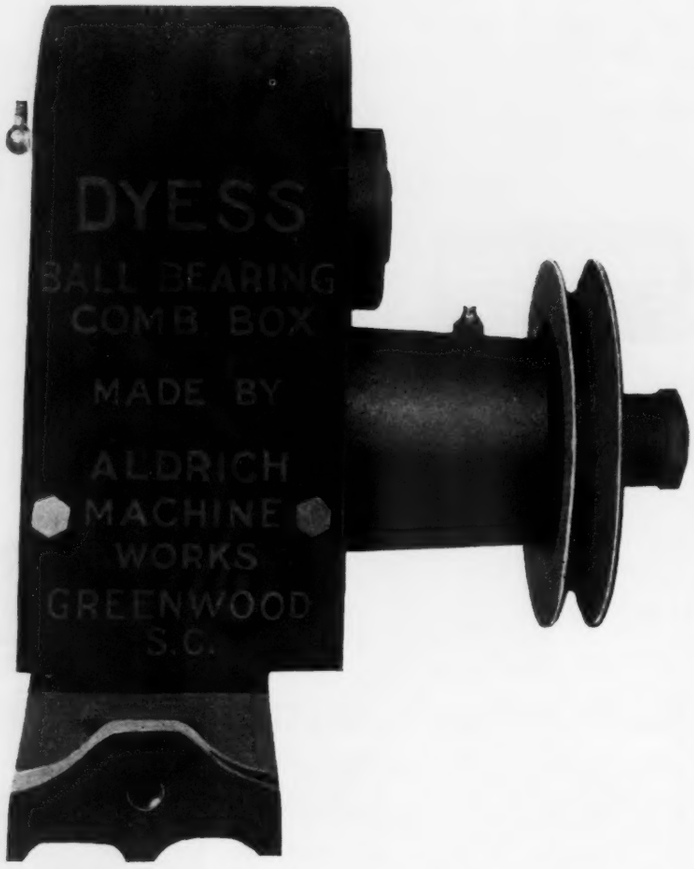
No Drip - No Spatter - No Rattle

▼

Old, worn-out comb boxes waste oil and are a constant expense.

Their perpetual dripping of oil on the floor is a menace to safety.

Their spattering injures the card clothing, and stains the work.



Dyess Comb Box with cover removed

Replace them with new ball bearing comb boxes kept on hand always in the supply room.

Made by

ALDRICH MACHINE WORKS

Greenwood, South Carolina

YOUR REPUTATION

CONE WINDING MAKES IT OR BREAKS IT

A reputation for quality is any spinner's biggest business asset. If YOU have such an asset, guard it well. If there is room for improvement in your case, it is none too soon to start improving NOW.

Whether your problem is to maintain or attain a reputation for quality, the Foster Model 102 Cone Winder can help you; for being the *last* process, cone winding is perhaps the most important operation in the mill.

The *appearance* of your cones determines a knitter's first impression, and first impressions, right or wrong, are lasting. The *performance* of your cones on the knitting machine is your last chance to create future business.

The Foster Model 102, properly adjusted and properly operated, practically guarantees both proper appearance of your cones and their proper performance on the knitting machine; and this at minimum cost to you. It retains all time proven features of older Foster Models and offers important improvements, such as 100 per cent increase in production, more delicate manipulation of the yarn, additional slub catching and exact lay of the coils on the cone surface to reduce variation in tension at the knitting machine. In short, it makes Foster Cones, more than ever before, *"standard for the knitting trade."*

FOSTER MODEL 102

FOSTER MACHINE CO.
WESTFIELD, MASS.
Fred P. Brooks, Representative,
P. O. Box 941, Atlanta, Ga.

Standard for the Knitting Trade

Have Your Machine Parts a Habit of Breaking at the Wrong Time ?

BREAKING machine parts are a "sore thumb" in many textile mills,—they have such a bad habit of going bad just at the most critical period when a rush is on.

A little more care in selecting your replacement parts will pay you dividends in less stoppage for repairs and decreased maintenance costs, not to speak of the smoother efficiency of operation.

HENDERSON Textile Repair Parts are not just ordinary parts turned out for necessary replacements. They are specially made parts intended to strengthen and increase the efficiency of the machinery they are used on. They are made by textile experts who have made a study of the weak points in present day equipment and they therefore carry greater strength where strength is needed. They are made from precision patterns and always fit accurately.

If you really want to eliminate frequent stoppage at critical periods, let HENDERSON help you. Pick out the most troublesome part of any one of your machines and let us supply a replacement part. We are confident you will find it fits perfectly, last longer and runs more smoothly.

HENDERSON FOUNDRY & MACHINE WORKS
HAMPTON GEORGIA

HENDERSON
TEXTILE REPAIR PARTS

FELDLOCK MACHINES ARE USED IN THE MANUFACTURE OF ARROW SHIRTS

THE FELDLOCK MACHINE— RECOGNIZE IT'S WORTH BY THE COMPANY IT KEEPS.

The Willcox & Gibbs Feldlock Machine has established a reputation for felling by its uniformity of feeding and stitching, economy in upkeep and operating efficiency. On any job requiring felling the Feldlock Machine strikes a modern note and immediately sets a standard for all stitching operations. A trial demonstration in your plant can be promptly arranged upon request.

WILLCOX & GIBBS SEWING MACHINE COMPANY

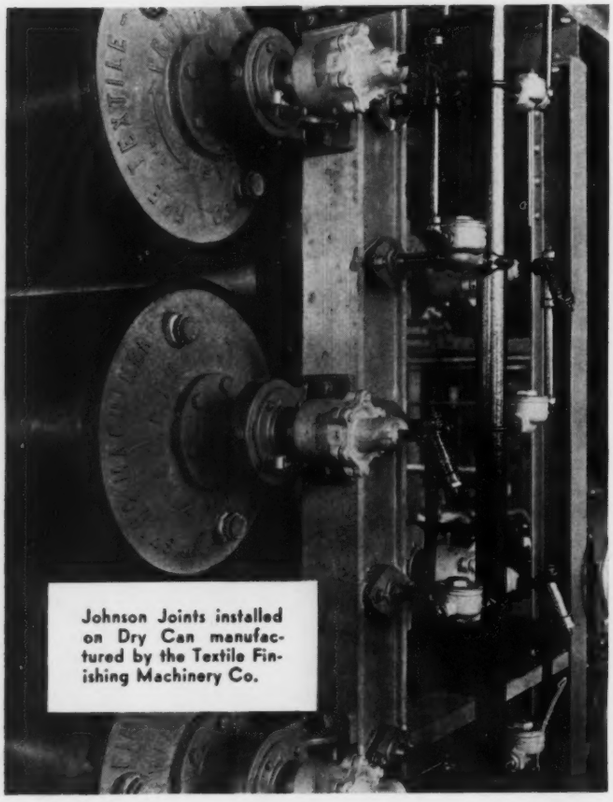
HOME OFFICE: 656-658 BROADWAY --- NEW YORK, N. Y.

MANUFACTURERS AND DISTRIBUTORS OF WILLCOX & GIBBS AND METROPOLITAN SEWING MACHINES

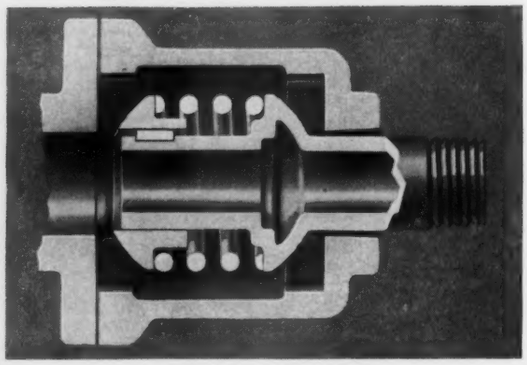
EUROPEAN REPRESENTATIVES

WILLCOX & GIBBS SEWING MACHINE CO., LTD., 20 FORE STREET, LONDON, E. C. 2, ENGLAND

You SAVE .. *steam, power, time*



Johnson Joints installed on Dry Can manufactured by the Textile Finishing Machinery Co.



-- when you install these trouble-free stuffing boxes on DRY CANS

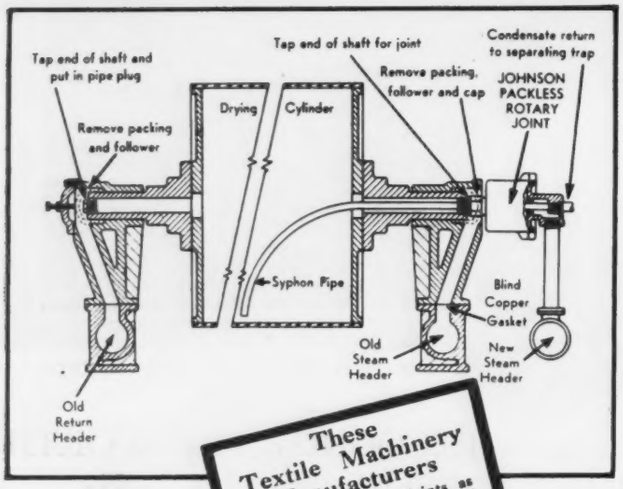
Here are two simple steps that take you up to the height of dry can efficiency—first, the Johnson Rotary Pressure Joint that marks the end of stuffing box troubles; second, the Johnson *method* of installation that assures complete removal of air and water.

The illustration above shows the simple, effective construction of the Johnson Joint. There is no packing of any kind. Pressure is retained by a pressure seated carbon graphite ring within the housing. Since the seal varies with the pressure, the joint is self-adjusting. Oiling is done away with because the carbon graphite is entirely self-lubricating. The ball and socket form takes care of all misalignment.

The Johnson method of installation is shown opposite. The joints are provided with a syphon pipe connection to be drained by an inverted bucket, non-air binding trap, and the opposite, or former "discharge" end is plugged. This syphon method of drainage has been proved the most effective on thousands of paper machine dryers. In fact, bucket drainage is considered obsolete in the paper field.

With Johnson Joints installed as illustrated, by-passes with the possibility of interaction, are eliminated, cans are ready to operate five or ten minutes after steam is turned on, higher can temperatures are obtained, power and steam is saved, and production is increased.

Ask for complete details on dry can installations also on slashers, calender and other steam heated rolls. Note that Johnson Joints have the approval of foremost Textile Machinery Manufacturers.


Tap end of shaft and put in pipe plug
Tap end of shaft for joint
Condensate return to separating trap
Remove packing, follower and cap
JOHNSON PACKLESS ROTARY JOINT
Remove packing and follower
Drying Cylinder
Syphon Pipe
Blind Copper Gasket
Old Steam Header
New Steam Header
Old Return Header

Method of installing Johnson Type "B2" Rotary Pressure Joints on Dry Cans.

These Textile Machinery Manufacturers

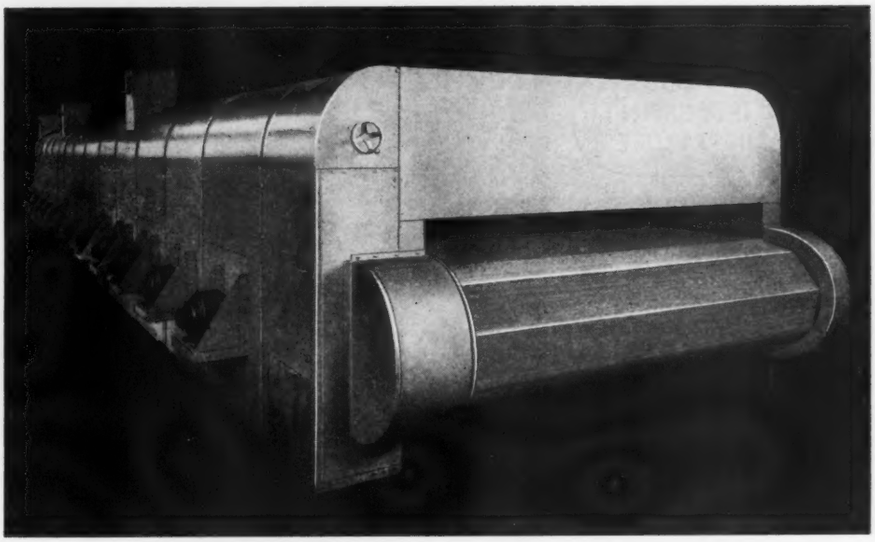
either use Johnson Joints as standard equipment or will furnish them on specification.

H. W. Butterworth & Sons Co.
Saco Lowell Shops
The Textile Finishing Machinery Company
John Waldron Corporation
Morrisson Machine Co.
Van Vlaanderen Machine Co.
Cocker Machine & Fdry. Co.
Frank P. Davis Co.
B. F. Perkins & Son Co.

THE JOHNSON CORPORATION
815 Wood Street, Three Rivers, Mich.

Johnson
Rotary PRESSURE JOINT

Modern Drying Equipment



One Apron Stock Dryer

NEWEST DESIGN

A leader in its field. This Sargent Stock Dryer has proven its worth to many satisfied users. This general acceptance by owners can be attributed only to the superiority of design, materials and workmanship so characteristic of these machines.

FEATURES:

Centrifugal fans, direct motor connected, New type coils, Sectional Conveyor with speed control.

--NEW PATENTED CURVED TOP--

reduces air resistance—promotes free air flow.

SARGENT PRODUCTS

Acidifying Machine—Automatic Extractor—Automatic Feeders—Backwashers — Backwash Dryers — Bagging Machines—Ball Winder—Carbonizing Dryers — Cloth Dryers — Carbonizing Dusters—Cotton Stock Dryers — Crush Roll Machines — Press Roll Machines — Single Apron Dryer—Skein Dryer—Special Dryers — Wool Dryers — Wool Washers — Yarn Conditioners — Yarn Scouring Machines.

C. G. SARGENT'S SONS CORPORATION

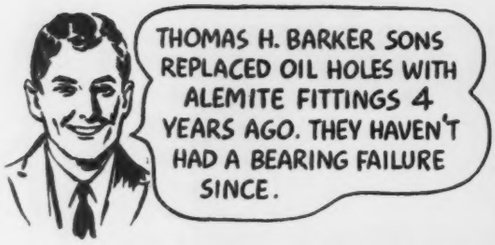
Graniteville, Mass.—Founded 1852

Southern Agents:
Fred H. White, Charlotte, N. C.
Fred P. Brooks, Atlanta, Ga.

Philadelphia Agent:
F. E. Wasson,
Drexel Bldg.

SARGENT IS THE PIONEER AMERICAN BUILDER OF DRYERS

ALEMITE SYSTEM CUTS SIX MONTHS' LUBRICANT CONSUMPTION FROM 5 DRUMS OF OIL TO 1/2 DRUM OF ALEMITE TEMPRITE LUBRICANT

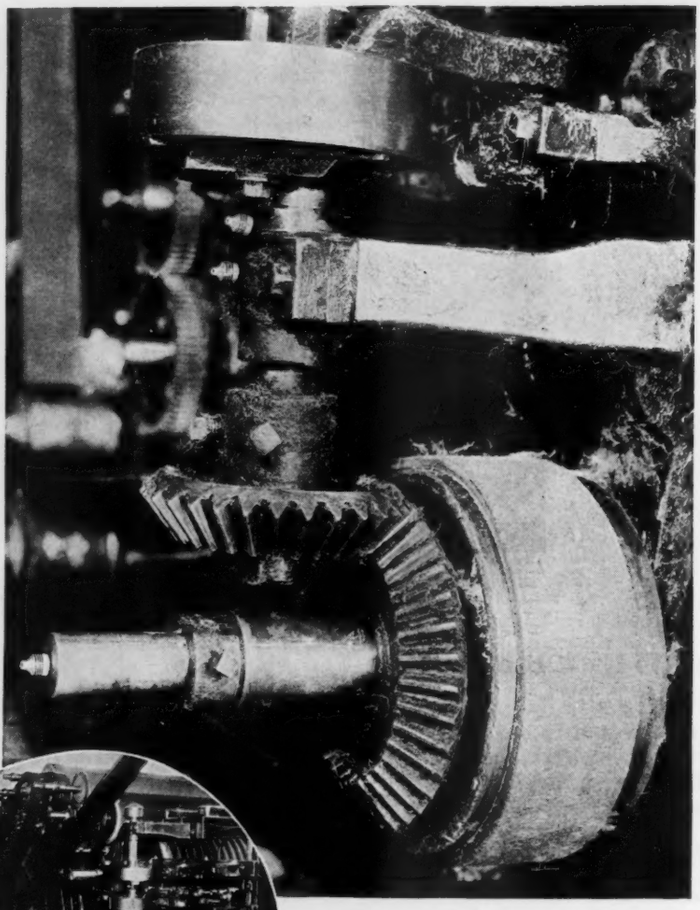


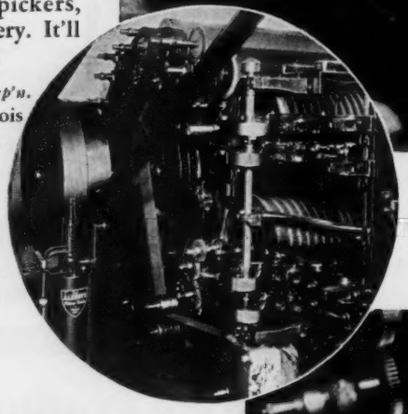
● You can't keep lint off carding machines. But you can eliminate the dangers of lint by replacing oil holes and squirt gun lubrication with Alemite Fittings, Alemite Guns, and Alemite Temprite Lubricant (a solidified oil). And you'll find it pays.

Just see what Alemite has done for this woolen yarn manufacturer of Gladwyne, Pennsylvania. Four years ago, they discovered that many breakdowns were due to faulty lubrication. They found oil holes as far as ten inches from the bearings, many of them clogged with lint and dust. And they found the slippery, oil-soaked floors were dangerous and a fire hazard. So they adopted the Alemite System and Alemite Lubricants.

Alemite is saving money for textile mills in all parts of the country. There are Alemite Systems for carding machines, pickers, looms, and all other textile machinery. It'll pay you to know more about them.

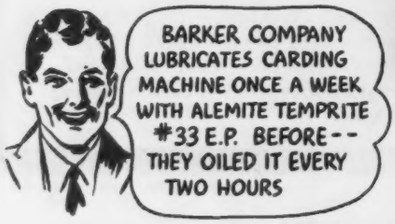
ALEMITE—*A Div. of Stewart-Warner Corp'n.*
1884 Diversey Parkway Chicago, Illinois
Stewart-Warner-Alemite Corp'n. of Can., Ltd.,
Belleville, Ontario, Canada

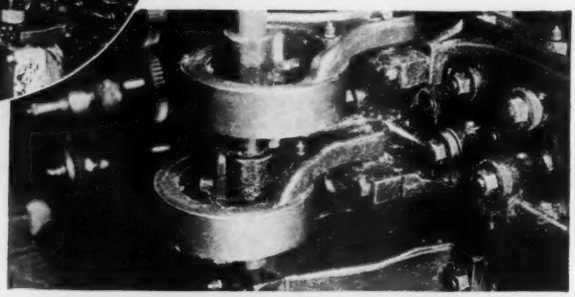




● **Above:** When this Carding Machine bearing was oiled—4 times each 8 hours—the oil had to flow 10 inches on the horizontal shaft. Seizure was frequent. Alemite No. 33 E. P., applied once a week, eliminated bearing failures.

● **Left:** Proctor & Schwartz Woolen Carding Machine in the Thomas H. Barker's Sons Mill.





● **Above:** The 500 to 700 R. P. M. cam action of this eccentric cup bearing required oiling every 2 hours to keep it cool. Belts, floors, and the machine received most of the oil. Now Alemite No. 33 E. P. is applied once each 8-hour shift.

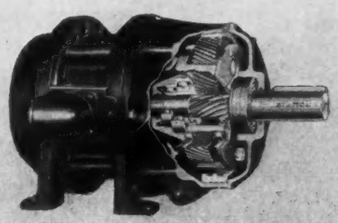
ALEMITE

REG U. S. PAT. OFF.

TEMPRITE LUBRICANTS
LUBRICATION EQUIPMENT

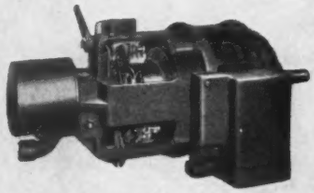
Tailor-made for finishing plants

WHICH MOTOR DO YOU NEED ?



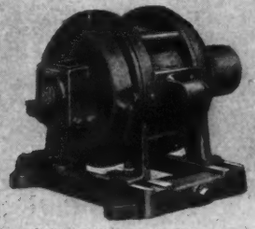
GEAR-MOTORS permit a wide choice of speeds from 600 down to 11 rpm. Available in single-phase, polyphase, and direct-current ratings, there is a G-E gear-motor for virtually every low-speed drive

DIRECT-CURRENT ADJUSTABLE- AND CONSTANT-SPEED MOTORS are available for a wide variety of heavy-duty applications



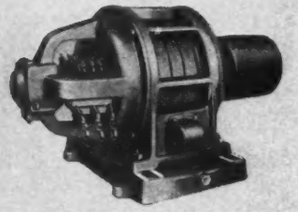
BTA BRUSH-SHIFTING MOTORS, manufactured exclusively by General Electric, offer wide ranges of speed and easy speed adjustment

TOTALLY ENCLOSED, FAN-COOLED MOTORS are recommended for use in severe moisture conditions. They are effectively cooled through the use of external-fan ventilation



SQUIRREL-CAGE INDUCTION MOTORS—simple, sturdy motors for your general-purpose applications

SPLASHPROOF MOTORS are designed for use where there are splashing or dripping liquids



WOUND-ROTOR INDUCTION MOTORS provide an economical means of adjusting speeds, over a limited range, for loads that do not have pronounced torque fluctuations

DRIVES FOR ALL FINISHING MACHINES

EVERY finishing-plant requirement has been taken into account in the construction of these motors. There are types for all finishing uses—drives that will reduce your operating and replacement costs and give many years of trouble-free performance.

MOTORS FOR ALL FINISHING USES—with calenders, tentering ranges, soapers, mercerizers, mangles, dryers, printing machines, padders, dyeing machines, Sanforizers.

The savings these economical, dependable motors will enable you to effect are the result of scientific design, and years of research in General Electric laboratories. The nearest G-E office will be glad to supply further information; or, write General Electric, Schenectady, N. Y.

011-63

GENERAL ELECTRIC

You can't escape FACTS!

A FINE FINISH Sells the Goods!

HERE ARE THE FACTS!

Women demand *beauty* in everything they buy—from kitchen gadgets to automobiles. The article with the most "eye appeal" is the one with the most "buy appeal".

The textile manufacturer who ignores this truth, is burying his head in the sand . . . while competition passes him by.

Fit your production to the demand. Add a FINE FINISH to your fabrics. Give them alluring beauty of color, feel and appearance. Then see how much easier they sell—and what higher prices they bring.

"Specialists on Finishing Materials"

READY TO HELP YOU!

ONYX chemists have concentrated a quarter-century of study, research and experimenting on the production of finer finishes. They are "specialists on finishing materials". As such, they are ***best qualified*** to give you information—formulae—and compounds that produce the finest finish on all fabrics.

We invite manufacturers to consult with our laboratories on any problems relating to bleaching, scouring, dyeing, printing or finishing—without obligation. Trained field representatives will assist, if you wish. Samples of any product, for any operation sent upon detailed request.

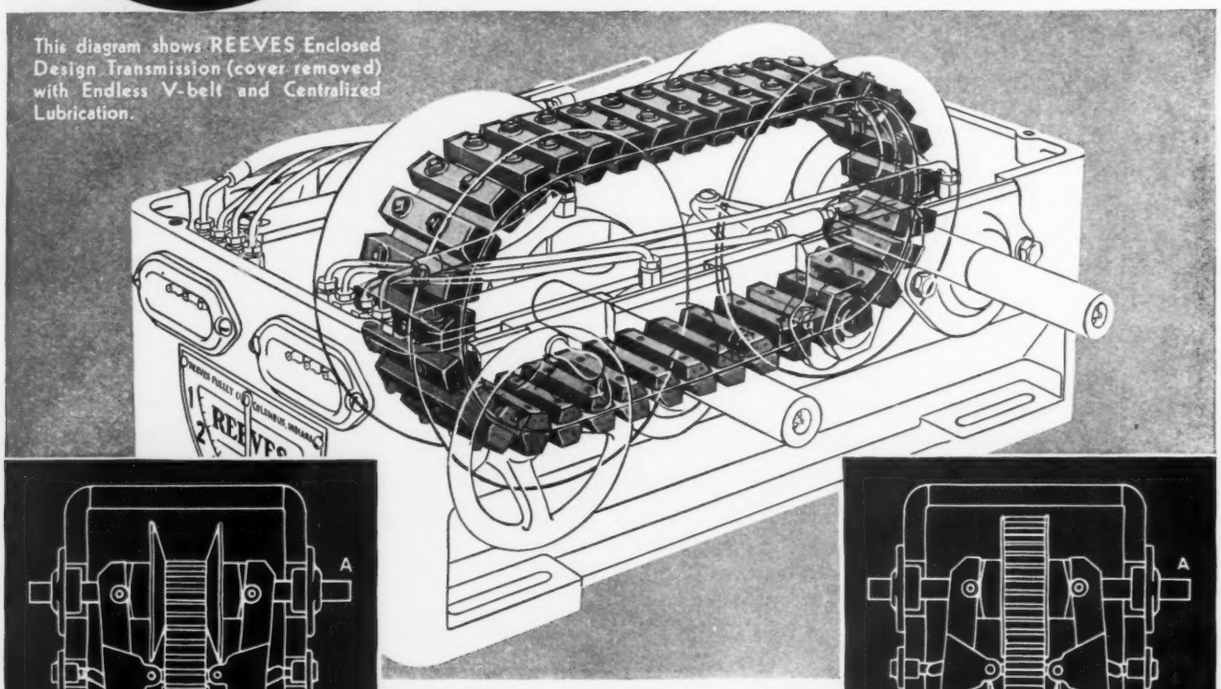
ONYX OIL & CHEMICAL CO., Jersey City, N. J.

Specialists on Finishing Materials.

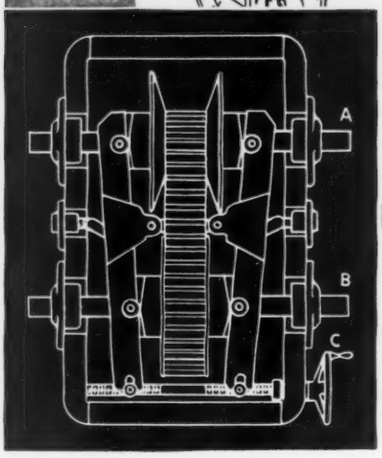
Southern Repr. E. W. Klumph, Charlotte, N. C.
Midw. Repr. Maher Color & Chemical Co., Inc., Chicago
In Canada: Onyx Oil & Chemical Co., Ltd., Montreal.

Onyx LABORATORY-CONTROLLED **PROCESSING & FINISHING COMPOUNDS**

how REEVES secures infinite, accurate, positive Speed Adjustability . . .



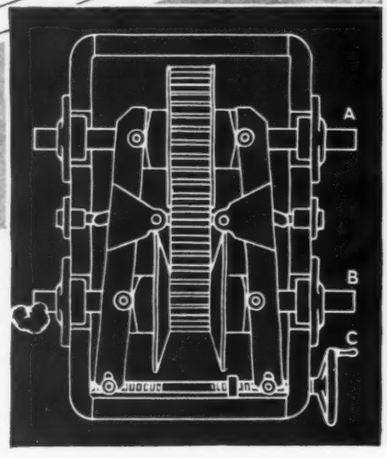
This diagram shows REEVES Enclosed Design Transmission (cover removed) with Endless V-belt and Centralized Lubrication.



AT MINIMUM SPEED

Note positions of REEVES discs, shifting levers and V-belt. Discs on the power input (constant speed) shaft A are at greatest distance apart and belt runs at smallest driving diameter. Discs on the power output (variable speed) shaft B are at closest position together and belt runs at largest driven diameter. By turning a convenient handwheel C, these relative diameters change to give any faster speed desired until maximum is attained. Either shaft may be constant and the other variable; and unit may be driven in either direction.

A BASIC factor in the efficiency of the REEVES Variable Speed Transmission is the rugged REEVES endless cord V-belt. Driving between two pairs of adjustable discs, as shown, this time-tested belt effects the desired speed variations as it runs over the different diameters formed by the discs. Power is transmitted positively and accurately due to NON-Slipping, wedge-like action of belt and due to belt tension being automatically controlled at all driving diameters (speeds). This is exceedingly important as a variable speed drive may be positive and yet fluctuate, especially at low and high speeds. . . . Look to REEVES for accuracy in speed control—and for a complete line of equipment.



AT MAXIMUM SPEED

Now the positions of REEVES discs, shifting levers and V-belt are reversed. Discs on power input (constant speed) shaft A are at closest position and belt runs at largest driving diameter. Discs on power output (variable speed) shaft B are at greatest distance apart and belt runs at smallest driven diameter. Handwheel regulates shifting levers which actuate the two pairs of adjustable discs, separating one pair as the opposite pair is brought together. Speed selectivity is smooth and accurate to fractional R. P. M. Four shaft extensions for power connections.

FREE ★ ★ ★ NEW SPEED CONTROL HANDBOOK

Most comprehensive book on this subject ever published; 112 pages, over 200 illustrations. Serviceably bound in blue cloth stamped in gold.

REEVES PULLEY COMPANY • COLUMBUS, INDIANA

Send copy of your new Speed Control Handbook, T-35. (11-35)

Name_____

Company_____

Address_____

Buried Alive for 32 Years

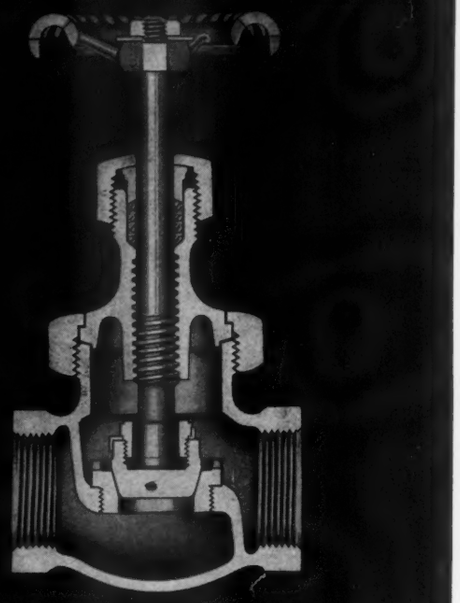
● This Crane gate valve was recently dug from the ground after 32 years of being "buried alive"—"alive" and working every day since 1903. The handle was eventually torn asunder by the long-handled tool used to operate the valve. But the stem, packing, gate and guides were in excellent condition, good for years more of the same dependable service.

You may not contemplate burying your piping system underground. But you do want the working parts to have stamina to withstand hard usage. This stamina you will find in Crane valves and fittings, because they are carefully made of scientifically selected materials.

There is a Crane valve or fitting for every part of your plant piping—for low pressure or high pressure, for ice water or superheated steam, for control, for safety, for throttling. Call the nearest Crane branch for quick information on any valve or fitting problem. Crane representatives will be glad to give you the benefit of Crane's 80 years experience in the design and manufacture of valves and fittings for every industrial use.

CRANE SHOP
FABRICATION SERVICE
Design Flanging
Casting Cutting
Bending Threading
Welding Assembling
There is a Crane Valve or Fitting for every piping requirement

NEW, LOW COST



Crane No. 14-P Brass Globe Valve

1 Introducing a new line of brass valves for 150 pounds steam pressure.

2 The scientifically designed brass plug disc and seat will give long service under severe working conditions.

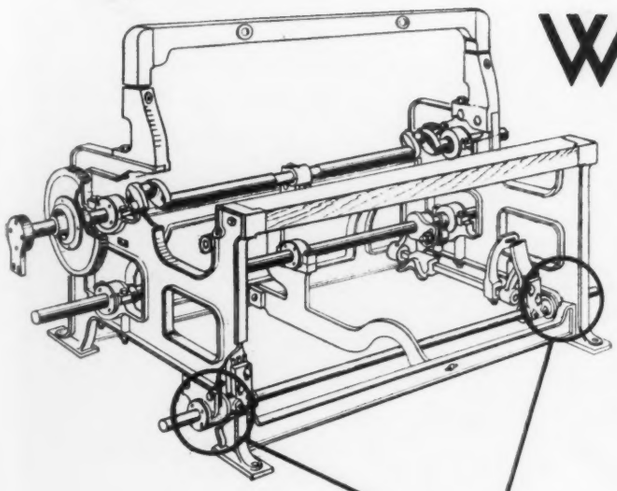
3 There is no restriction in flow through the Crane plug disc and the disc will not jam in the seat.

4 The disc swivels on the stem, permitting free and positive closing of the valve.

5 Moderate original cost and negligible maintenance cost make this valve especially desirable for general plant piping.

CRANE CO., GENERAL OFFICES: 836 SO. MICHIGAN AVE., CHICAGO, ILL. • NEW YORK: 23 W. 44TH STREET
Branches and Sales Offices in One Hundred and Sixty Cities

CRANE VALVES, FITTINGS and PIPE FABRICATION



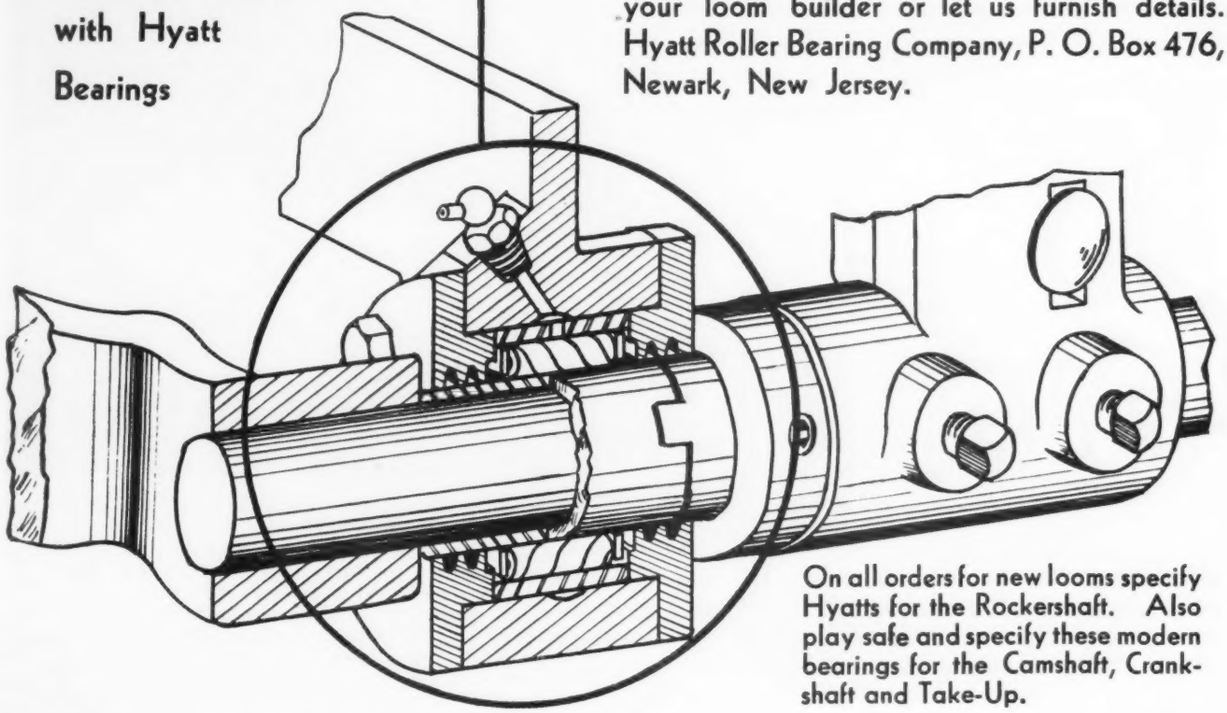
Why Perpetuate Obsolete Bearing Methods ? ? ? ? ?

Modern medical clinics use the latest aids known to science when they look for human troubles. Then they recommend modern corrective treatment. They seek to cure the trouble not merely abate it.

Why not be guided by the example of the medical profession when you diagnose your loom troubles? Replace your obsolete type worn rockershaft bearings with modern close clearance Hyatts and cure this troublesome wear and lubrication problem forever.

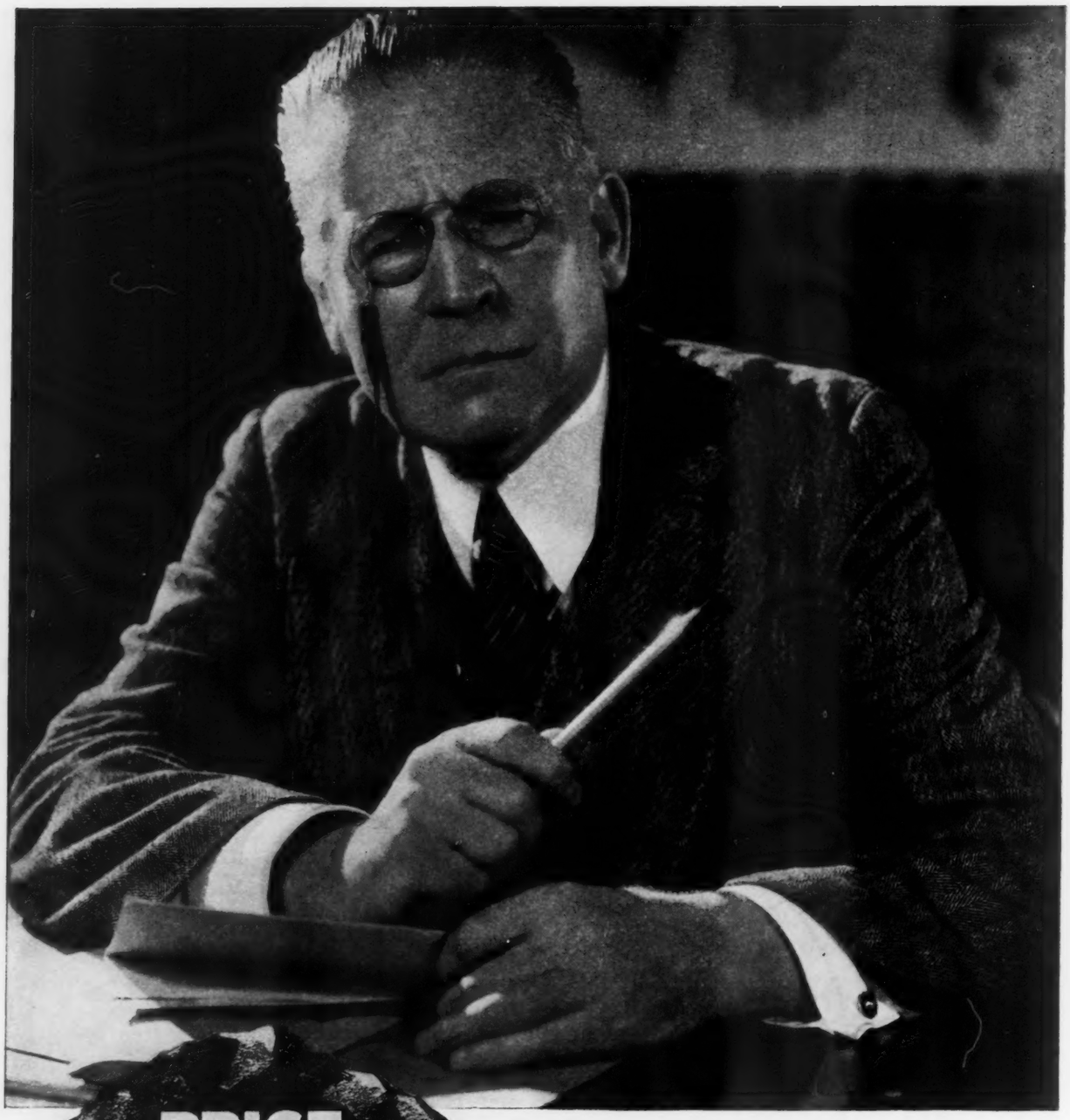
For rockershaft replacements get in touch with your loom builder or let us furnish details. Hyatt Roller Bearing Company, P. O. Box 476, Newark, New Jersey.

Loom Section shows the modern rockershaft with Hyatt Bearings



On all orders for new looms specify Hyatts for the Rockershaft. Also play safe and specify these modern bearings for the Camshaft, Crankshaft and Take-Up.

HYATT
ROLLER BEARINGS
PRODUCT OF GENERAL MOTORS



PRICE
is only relative

CROZER
GENCO
RODA
Admiralty Coal
STONEGA
DENDRON
WESTMORELAND COAL COMPANY
CRITERION COAL
PREMIX STOKER
DEPENDABLE ANTHRACITE

THE value of a coal should be measured by its ability to produce steam efficiently and economically.

You can assure yourself of energy in its most concentrated form by specifying a brand of General Coal. The purity of our coals in the seam and our policy of close supervision over every step, from our mines to your delivery siding, assures you of a uniformly high quality coal.

We do not claim the lowest f. o. b. mine price per ton of coal, although in most cases our locations in both the southern and northern fields permit us to select for any plant the coal most advantageously fitted with regard to transportation cost. We do claim that the effective heat values delivered by General Coals make their use an economy based on actual operating results.

GENERAL COAL COMPANY
PHILADELPHIA, PA.

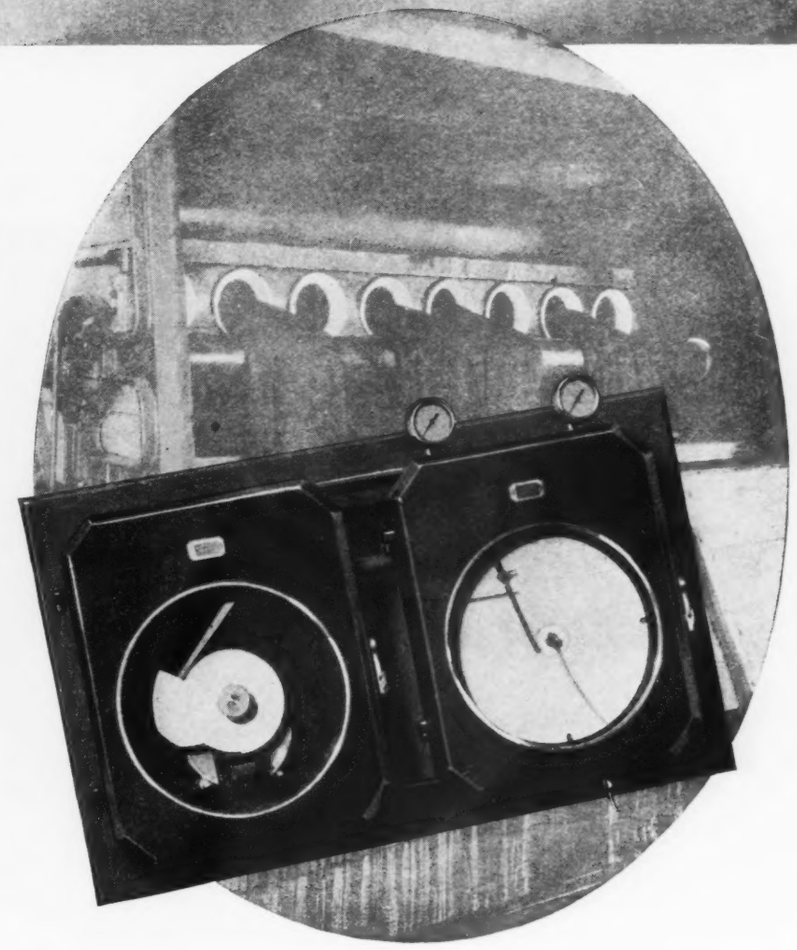
BOSTON CHARLOTTE, N. C. DETROIT CINCINNATI
NEW YORK PITTSBURGH BUFFALO IRWIN, PA. RICHMOND

GENERAL COAL COMPANY

GENERAL COAL

NO MORE UNEVEN SHADING

Mill stops streaking, obtains uniformity of shade, assures color fastness and even exhaustion of dye bath with Automatic Taylor Temperature Control.



WHEN colors go wrong in dyeing, it may be the composition of the bath. But when the formula is exact, where can the trouble be?

Look to the dye bath temperatures . . . the time schedule for raising and holding temperature. It was an inability to control these temperatures exactly which showed one mill how to eliminate uneven shading by installing a Taylor Time-Schedule Recording Controller on its constant speed jigs.

This modern system of control combines regulation of both time and temperature. It follows accurately and automatically any time schedule for raising and holding dye bath temperatures. It provides a complete and synchronized time and temperature record of the bath.

It reproduces the same schedule time after time. Or it can be regulated for the requirements of any type of dyestuff or material. This is possible by cutting cams to fit different schedules and inserting them in the left-hand case of the instrument.

Besides assuring uniformity of shade, fastness of color, even exhaustion of bath, and steam savings, this controller gives a temperature record that is valuable in checking dyeing results and in duplicating those results at any time.

This dye bath control is only one of the many Taylor Systems that are constantly being engineered to meet a mill's specific needs from slashing to finishing. For information in helping to specify the most modern temperature control for your mill, write Taylor Instrument Companies, Rochester, N.Y., or Toronto, Canada. Manufacturers in Great Britain—Short & Mason, Ltd., London.

The Taylor Time-Schedule Recording Controller shuts off steam, turns on cold water, stops reels, or performs other functions at the end of the cycle. In the left case, the cam cut to assure the proper temperature and time schedule. In the right case, the charted temperature record.

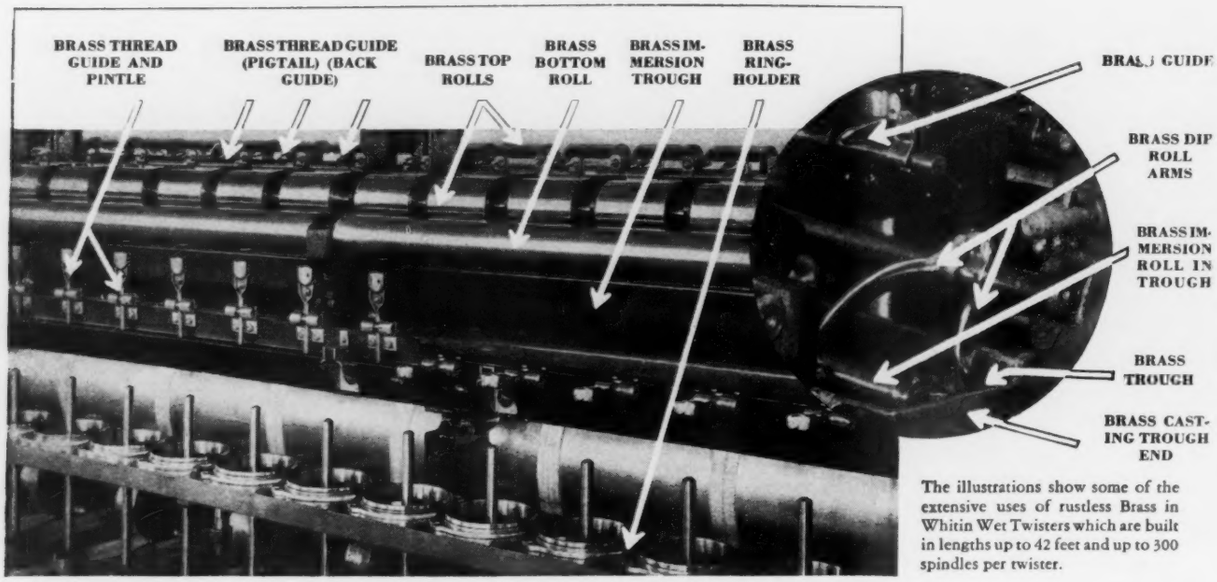
Taylor

Indicating | Recording • Controlling

TEMPERATURE, PRESSURE *and* **FLOW INSTRUMENTS**

CUT COSTS—FROM SLASHING TO FINISHING

Whitin Wet Twisters Employ BRASS *at the vital points*



The illustrations show some of the extensive uses of rustless Brass in Whitin Wet Twisters which are built in lengths up to 42 feet and up to 300 spindles per twister.

PRACTICALLY submerged in water, the many Brass parts on these wet twisters can't rust—can't cause the expense and inconvenience of rust-stained yarn. Built by the Whitin Machine Works of Whitinsville, Mass., these wet twisters thwart rust at every turn—because...

Brass arms hold *brass* immersion rolls suspended in water. Through *brass* back guides, the twister threads are carried over *brass* rolls, into *brass* water troughs... then threaded over and under bottom and top *brass* rolls.

In addition to corrosion resistance and moderate cost, Brass offers substantial economies in fabrication. Wrought Brass in all commercial shapes is readily available and can be easily formed and machined with regular shop equipment. And Brass inherently lends itself to the fine machined finish that is so essential for contact surfaces in textile equipment.

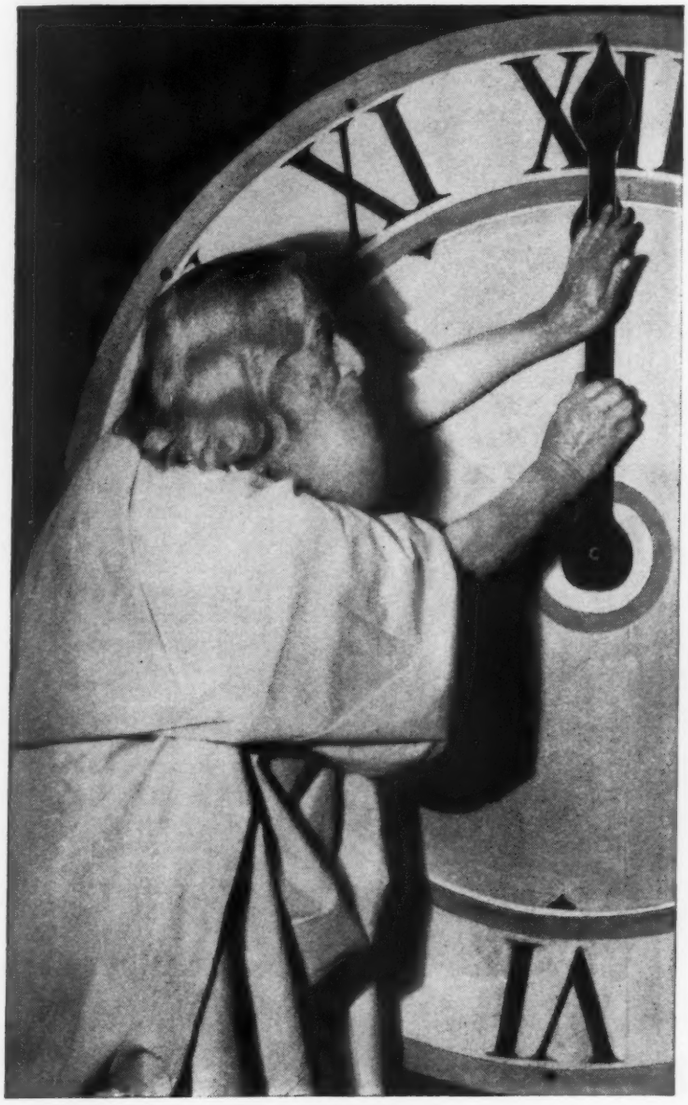
The Technical Department of The American Brass Company... with more than a century's experience in the production of Copper, Brass, Bronze and special corrosion-resisting alloys... will be glad to help you determine the correct metal or alloy for any specific application.

ANACONDA from mine to consumer

85198

THE AMERICAN BRASS COMPANY
General Offices: Waterbury, Connecticut
Offices and Agencies in Principal Cities

ANACONDA COPPER & BRASS



STOP TIME!

the grim reaper..will he get your fabrics? Will he turn them yellow and rancid?

PLAY SAFE WITH CREAM SOFTENER J. B.

• Your finished goods will never develop odor or turn yellow if you use Cream Softener J. B.

Our new method of sulphonating Tallow keeps it from oxidizing, which was one of the main difficulties in the use of Tallow as a softener.

Cream Softener J. B. is equally adaptable for softening cotton warps, yarns, hosiery and raw stock. Its advantages over raw Tallow, soluble oils and other softeners make it the most satisfactory and economical product you have ever used.

JACQUES WOLF & CO.

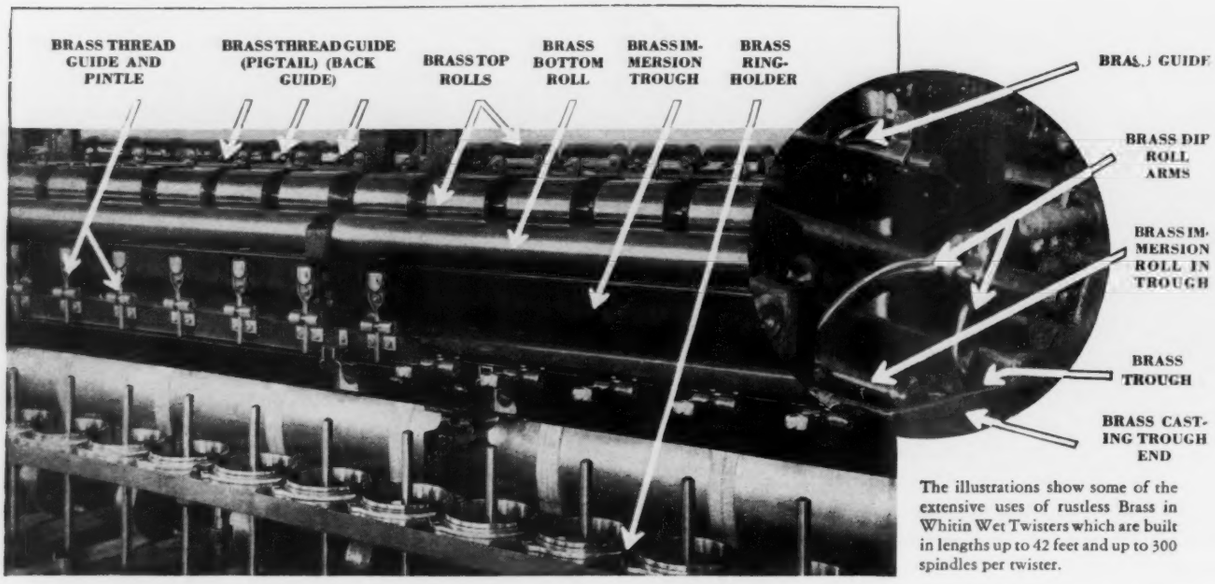
MANUFACTURING CHEMISTS AND IMPORTERS... PASSAIC, NEW JERSEY

Warehouses: Providence, R. I., Philadelphia, Pa., Utica, N.Y., Chicago, Ill., Greenville, S. C., Chattanooga, Tenn.

Whitin Wet Twisters Employ

BRASS

at the vital points



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JACQUES WOLF & CO.

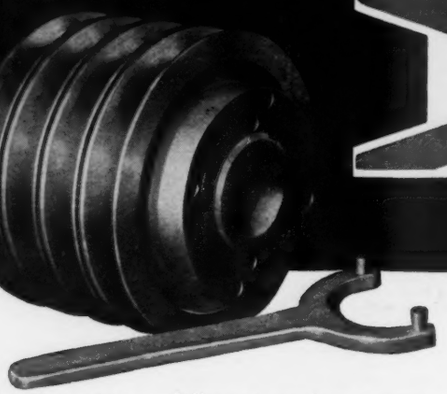
MANUFACTURING CHEMISTS AND IMPORTERS... PASSAIC, NEW JERSEY

Warehouses: **Providence, R. I., Philadelphia, Pa., Utica, N.Y., Chicago, Ill., Greenville, S. C., Chattanooga, Tenn.**

Cross-section of Vari-Pitch Sheave and Texrope Belt adjusted for maximum diameter—high speed.

Cross-section of Vari-Pitch Sheave and Texrope Belt adjusted for minimum diameter—low speed.

THE NEW Vari-Pitch TEXROPE SHEAVE



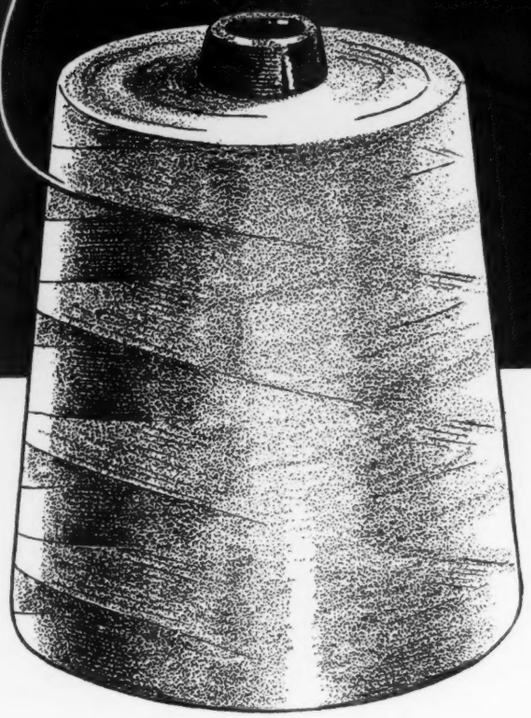
● The new Vari-Pitch Texrope Sheave, now offered by the Allis-Chalmers Mfg. Co., represents a vitally important development in power transmission. ● By a simple adjustment, which takes but a few moments, the diameter of this new sheave can be altered so as to give a variation in speed of from 15 to 25 per cent per sheave; if both sheaves are of this type a 30 to 50 per cent variation in speed is possible. This permits you to take advantage of higher speed cutting tools; it permits you to experiment with different speeds to ascertain at just what speed your machines show the greatest efficiency; it permits you to make different products, some of which require higher speeds and some lower — and do all this without dismantling and buying new drives, but simply by taking a few moments to make the desired adjustment. ● Vari-Pitch Texrope Sheaves are for manual and automatic adjustment. The manual type is recommended for applications that require occasional changes of speed. For applications that require frequent changes the entirely automatic type is recommended in which speed can be instantly varied to full range while the drive is in operation.

TEXROPE DRIVES

ORIGINATED BY ALLIS-CHALMERS

ALLIS-CHALMERS MANUFACTURING COMPANY · MILWAUKEE, WISCONSIN

Now... hosiery yarns Run Evenly whether on machine 1 DAY or 4



Special NOPCO DIRECT KNITTING OIL

assures uniform tension

WHETHER you condition your yarns or run them dry you will find Nopco Direct No. 1 the proper oil for imparting the necessary pliability to your yarns.

Nopco Direct No. 1 assures uniform and effective lubrication — the result of correct moisture content and oil distribution. It assures uniform tension — a vital factor to good hosiery making. A practical knitting test will prove our contention.

A number of special soaking formulae using Nopco Direct No. 1 knitting oil have been developed by us, and are in use in many leading mills. These formulae — for running either conditioned or dry yarns — can be easily adapted to your mill.

For complete information, just mail the coupon.

MEMBERS OF THROWSTERS RESEARCH INSTITUTE

NATIONAL OIL PRODUCTS COMPANY, INC.

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BOSTON CHICAGO SAN FRANCISCO

NOPCO

National Oil Products Co.
Harrison, N. J.

Gentlemen: Please send us complete information regarding Nopco Direct No. 1 knitting oil.

Name _____

Address _____

Company _____

C-11

Weaving Costs go DOWN

when THIS TEAM GOES ON THE JOB

Crompton & Knowles type C3 Terry Towel Looms, in a large Georgia Mill, driven by Westinghouse 3-point suspension loom motors controlled by Westinghouse WK-18 starting switches.

Westinghouse Loom Drives are matched in every detail to the latest types of high-speed looms. Installed together, they assure unfailing reliability and maximum economy in weaving . . . because, with Westinghouse Drive you get:

Plenty of power for breaking in new high-speed looms.

Low power consumption because of the remarkably high motor efficiency.

Effective overload protection because the WK-18 Motor Starter provides certain protection against dangerous overloads, yet permits the motor to carry safe overloads without interruption.

Exceptionally low maintenance because oil cannot get into the motor windings, the rotor is practically indestructible, and bearings are designed for exceptionally long life.

To make sure that you get maximum weaving economy, specify *Westinghouse Drive* when you install new high-speed looms such as the C & K Models S3, S4, C3, C4, W2, W3 and Draper Models X, C, XK and XL. Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa. R 61006

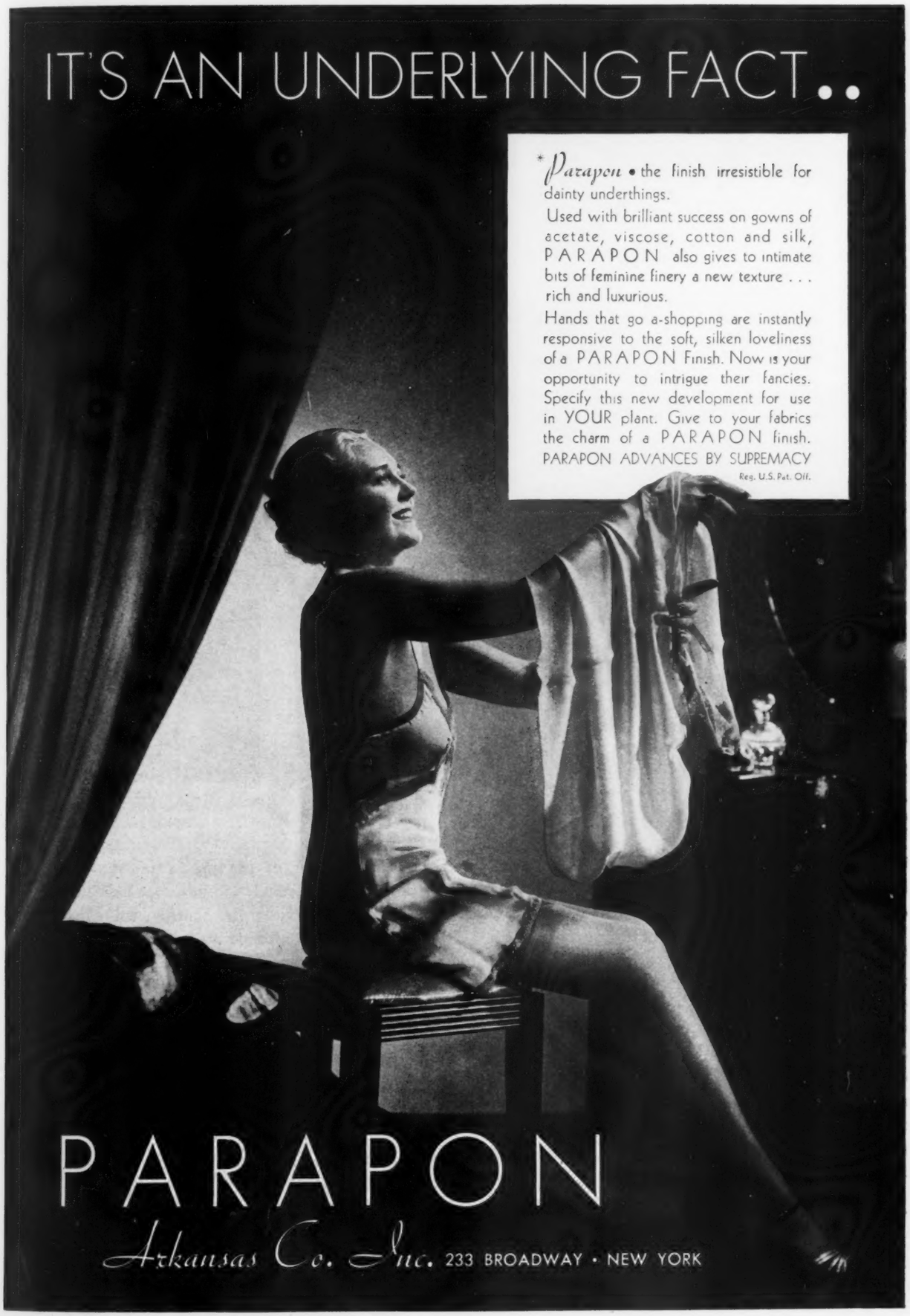
1

The bearings of Westinghouse 3-point suspension motors are designed for long life and low maintenance. Both front and rear bearings have easy-to-get-at oilers. Over-oiling and flooding of the motor is impossible—an overflow drains all surplus oil outside the motor.

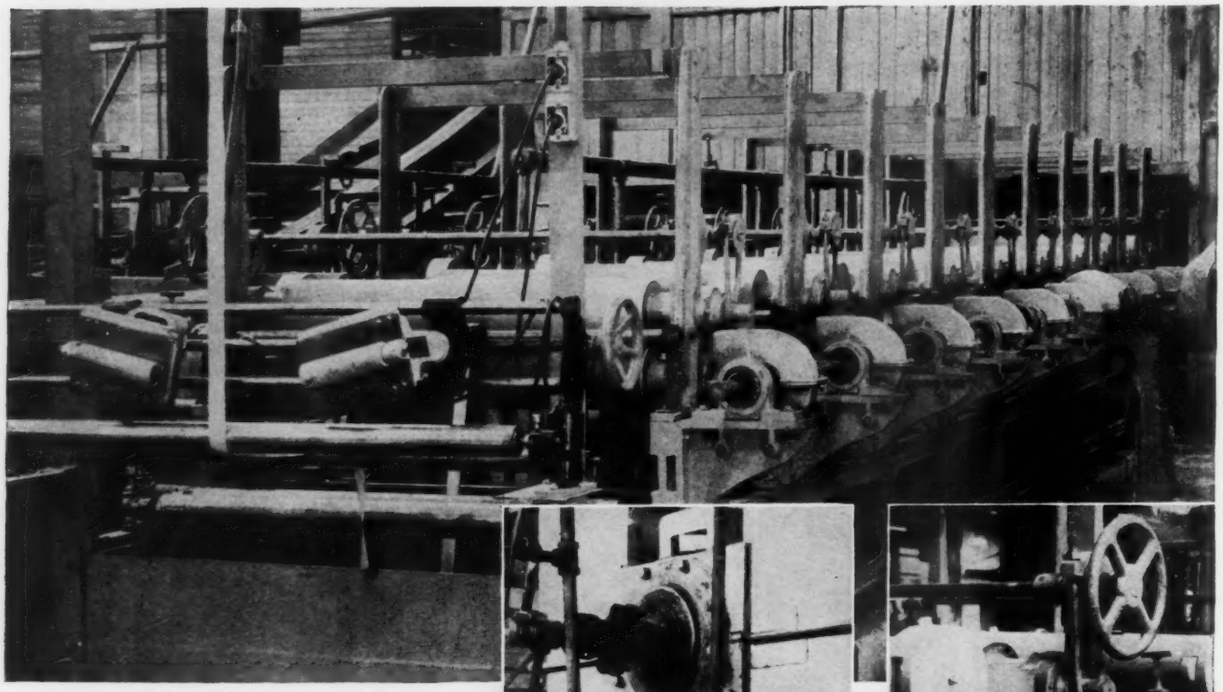
2

The WK-18 Loom Motor Starter guards the motor against overloads. It is supplied with a floor-mounted pedestal. Safe and positive in operation under high-humidity conditions.

Westinghouse LOOM DRIVE

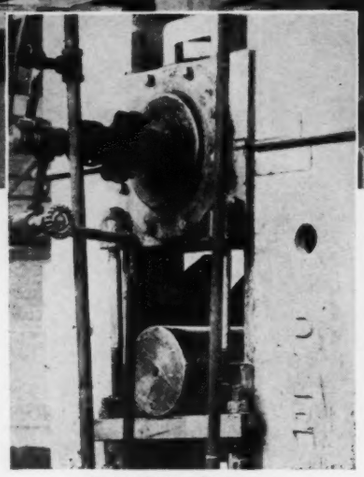

IT'S AN UNDERLYING FACT..
*Parapon • the finish irresistible for dainty underthings.
Used with brilliant success on gowns of acetate, viscose, cotton and silk, PARAPON also gives to intimate bits of feminine finery a new texture . . . rich and luxurious.
Hands that go a-shopping are instantly responsive to the soft, silken loveliness of a PARAPON Finish. Now is your opportunity to intrigue their fancies. Specify this new development for use in YOUR plant. Give to your fabrics the charm of a PARAPON finish.
PARAPON ADVANCES BY SUPREMACY
Reg. U.S. Pat. Off.
PARAPON
Arkansas Co. Inc. 233 BROADWAY • NEW YORK

Friction-Free Operation *of this Soaper...*

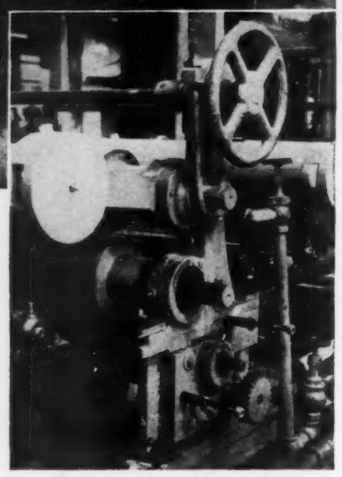


Special seals on these Fafnir Pillow Blocks keep out all water

ASSURED BY 200 FAFNIRS



Fafnir Roller Bearings are used on the top roll



This close-up shows seven applications of Fafnir Bearings

More than 200 Fafnir Ball Bearings are used on this open soaper at the printing and finishing plant of a well-known textile mill. Fafnir Heavy Duty Pillow Blocks help eliminate friction on the side shaft which sustains the gear load. On the rolls themselves—the top and bottom squeeze rolls — specially-designed Fafnir Ball Bearing Units have been applied. These bearings are equipped with seals that exclude the ever-present water. Then deep-groove heavy duty ball bearings are made to self-align within the unit in order to insure absolute freedom of motion and long roll and bearing life.

The simplicity of application of the Fafnir Wide Inner Ring Bearing was an important factor in the selection of so many of this type in this machine. The top roll on the calender, too, is supported smoothly by Fafnirs—industrial roller bearings this time, with ball bearings also incorporated in the unit to take all thrusts . . . an application which is typical of the way Fafnir Bearings are engineered to every job.

For complete information on "the most complete line of ball bearings in America" consult any Fafnir representative or write to THE FAFNIR BEARING COMPANY, *New Britain, Connecticut.* Representatives also at: Atlanta, Georgia . . . Houston, Texas . . . Charlotte, North Carolina . . . Boston, Massachusetts . . . Dallas, Texas . . . Birmingham, Alabama . . . Kansas City, Missouri.

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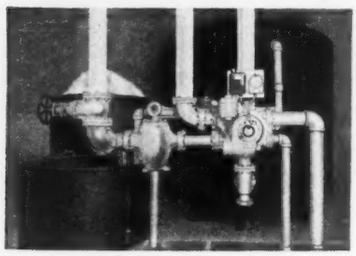

Modernize your *old* equipment. Install Permutit's new single-valve automatic control, and refill your softener with Super-Zeo-Dur. This new greensand zeolite has been recently perfected . . . it uses less salt, and has 75% higher capacity for softening water than ever before. Write for details.

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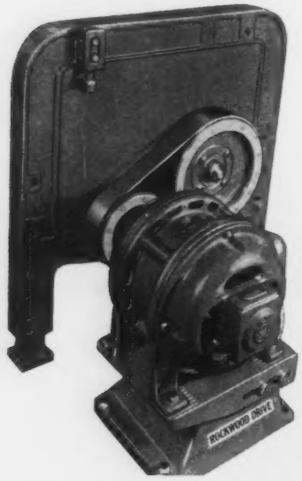
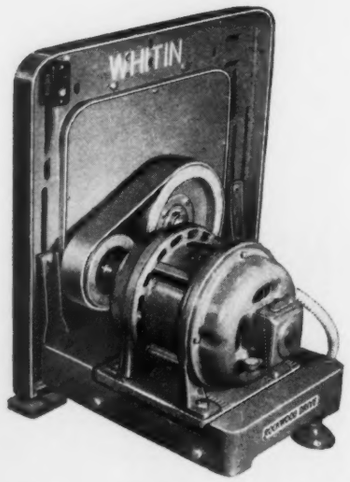
EFFICIENT, PRACTICAL DRIVES for SPINNING FRAMES



• In this trim, compact drive, the motor is pivotally mounted on a special base casting, well above the floor line. Simple concealed adjustment screws permit proper belt tensioning and easy pulley alignment when the drive is installed. Then the pivoted motor-weight, lightly cradled in the belt, assures uniform transmitting capacity throughout the life of the drive.

• This Drive employs the ROCKWOOD Vertical Drive principle, with constant spring tension to keep the belt *always* tight. The drive is reversible, and provides a liberal floor clearance with maximum adjustment for different pulley and belt sizes.



• Many mill engineers prefer a shelf or bracket mounting for their motors. In this drive, the pivoted motor plate is recessed neatly in a sturdy shelf attached to the frame. A minimum of floor space is required and the drive is easy to keep clean. The shelf is half the width of the frame to permit "staggering", and it may be raised or lowered to meet conditions of installation.

ROCKWOOD engineering improvements in spinning frame drives give you a choice of three different types of motor mountings—floor, vertical and shelf—all practical, all thoroughly proven in mill operation.

The success of these efficient, dependable drives for spinning confirms the *soundness* of all ROCKWOOD drive engineering. Before making any changes in your mill, investigate the money-saving advantages of ROCKWOOD Drives for all kinds of lineshaft and individual-machine applications.

Low first cost—ease of installation—dependability in service—low maintenance—and unequalled high *sustained* power-transmitting capacity—are advantages too important for you to pass up. ROCKWOOD engineers will be glad to make recommendations. Write for details.

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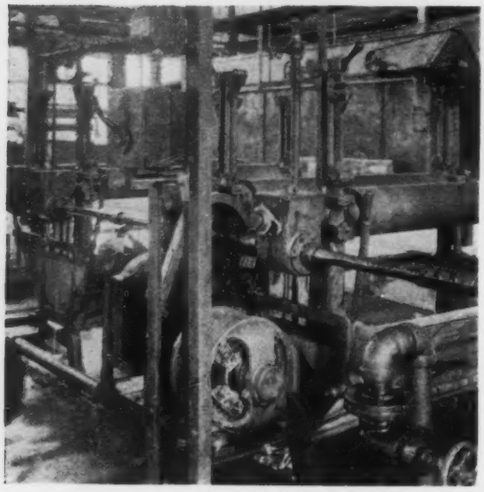
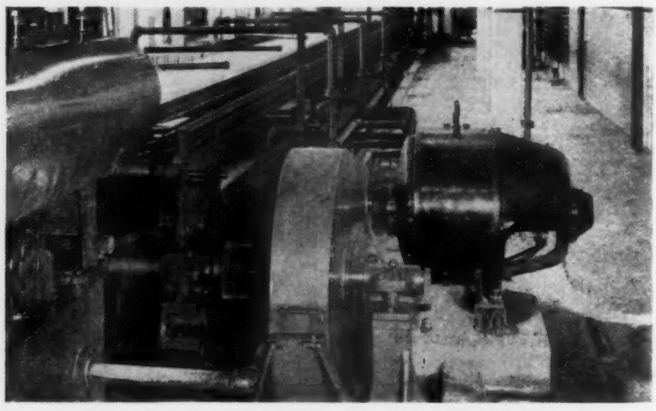
Universal care is taken to see that the windings of Reliance Motors are thoroughly insulated to combat these trying conditions. As a result these rugged, well-insulated motors have won a good name for long life and dependable service on bleaching and finishing equipment.

Caustic solution drips around these kier-pump motors, from above



This 3 hp. d-c. motor drives a group of four silk jigs and is exposed to splashing dye



7½ hp. Reliance Motor driving a caustic paddle in a mercerizing range. The exposed mechanical parts of this motor receive special treatment as well as the windings

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● The owners of the shop were purchasing a large machine. They thought they'd have to build an addition to house the motor. But investigation showed that no extra room would be needed if Dayton Cog-Belt Drives were used, because the motor and machine could be mounted on extremely short centers.

This is typical of many cases where Dayton Cog-Belt Drives are saving valuable space in factories, shops, and mills of all kinds. It suggests an important reason for adopting Dayton Cog-Belt Drives when remodeling old machinery or installing new.

Besides eliminating long spans of belting, Dayton Cog-Belt Drives afford other worthwhile economies. They require minimum tension and are consequently easy on bearings. They need no dressing, do not slip, and do not fly off the pulleys, thus providing maximum uninterrupted production. Furthermore, they give exceptionally long service with practically no maintenance expense.

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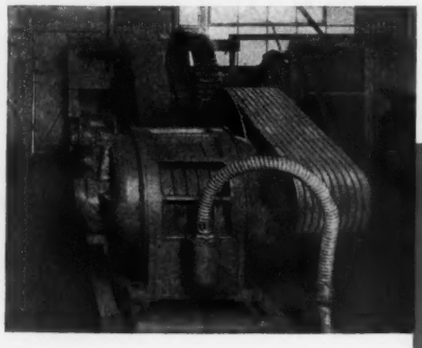
• Manufacturers also of Dayton Fan Belts, Dayton Red Tube Radiator Hose and the famous Dayton Thorobred Tires and Tubes



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. . . they're made of MONEL METAL

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DYEHOUSE operators know that ordinary pails are an almost endless source of expense.

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For dyehouse utensils that are more than equal to this doubly-severe service, plants everywhere are turning to those made of MONEL METAL.

Monel Metal is stronger and tougher than steel itself. Moreover, it is solid through and through. There is no coating to chip, peel or crack off, nor is there any smudging or marking off, as with pails made of some metals.

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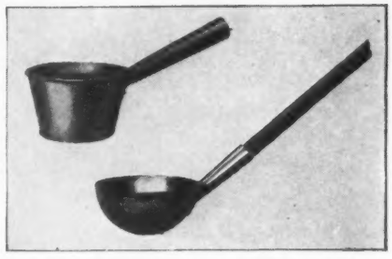

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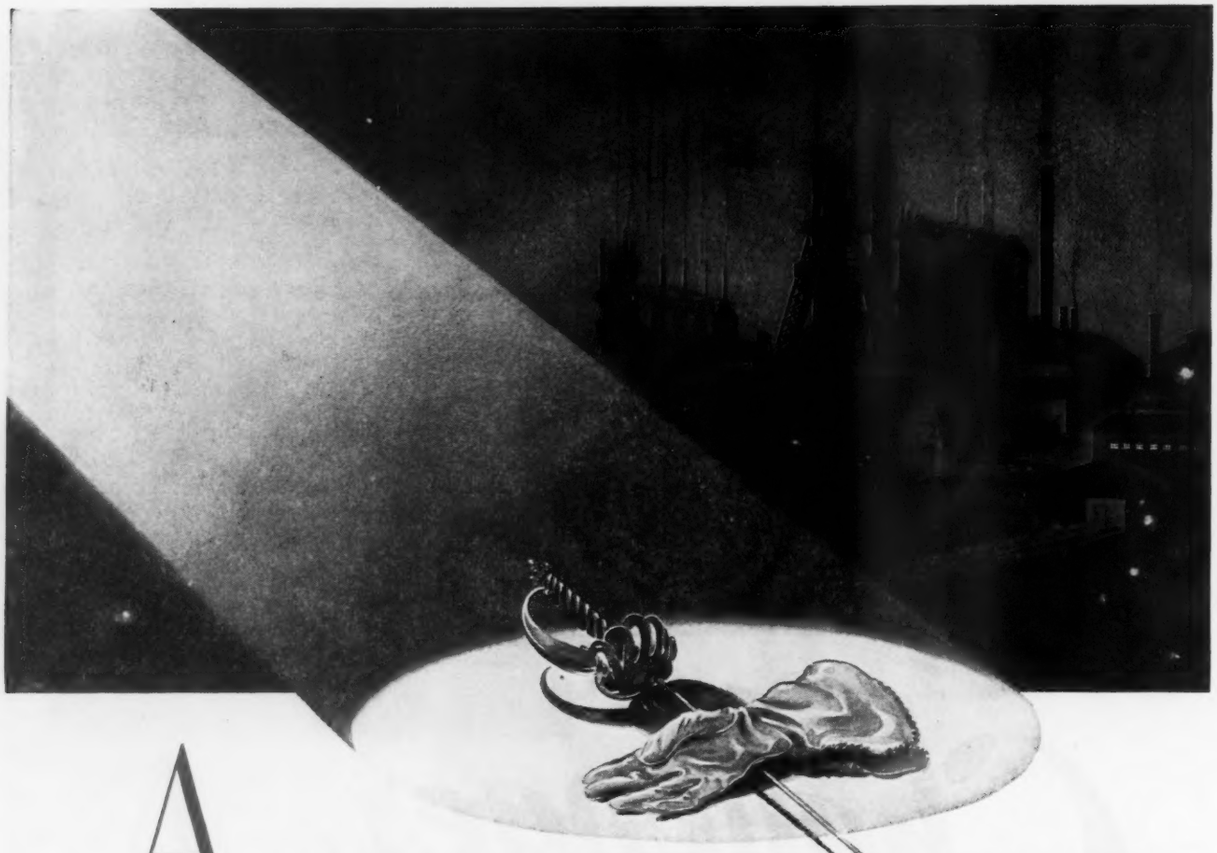

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accepts the challenge of industry . . .

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The merger of Corrigan-McKinney Steel Company and Newton Steel Company with Republic Steel Corporation is one of far-reaching significance. Corrigan-McKinney Steel Company brings to Republic tremendously increased facilities for the production of high grade pig iron and steel. Newton Steel Company has long been an important source of supply for quality sheets.

Even before the acquisition of these companies, Republic was the world's largest producer of alloy steels, including the famous Agathon line, ENDURO perfected stainless steels and the new Republic Double Strength high tensile steels that are lightening the weight of nearly every type of transportation unit. Republic has been the sole maker of rust-resisting Toncan Iron for more than 27 years—the pioneer in the development of electric resistance welded pipe—the maker of Sil-con low-loss electrical sheets and coiled strip.

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No. 11

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INDUSTRIAL RAYON CORPORATION · CLEVELAND, OHIO

NOV 21 1935

Vol. 99
No. 11

COTTON

November,
1935

Murchison Is New Institute President; Other Industry News Reported

CLAUDIUS T. MURCHISON, director of the Bureau of Foreign and Domestic Commerce of the Department of Commerce, Washington, was elected as president of The Cotton-Textile Institute, at the annual meeting of the Institute held in New York City on October 23-24. Previous to his Government connection, Dr. Murchison was professor of economics at the University of North Carolina, Chapel Hill, N. C. While at this school, he was the author of several books, including "King Cotton is Sick", an analysis of the difficulties of the cotton-textile industry, published during 1930.

Dr. Murchison is a native of North Carolina, and was born in Hickory in 1889. He received an A.B. degree at Wake Forest College, and Ph.D. at Columbia University. In 1915 he was a lecturer in economics at Columbia University, and later served as assistant professor of economics at Miami University and Hunter College and New York University. He went to Chapel Hill in 1921, as associate professor of economics, later became professor of applied economics, and, during 1924-25 was acting dean and head of the department of economics and commerce.

He succeeds as president of the Institute, Goldthwaite H. Dorr, who has been acting temporarily as president since the resignation of George A. Sloan, earlier this year. Mr. Sloan was the second president of the Institute, having succeeded the late Walker D. Hines, who was the organization's first president when it was formed ten years ago. Mr. Dorr, who was relieved of the active management of the association at his request and in accordance with an understanding when he assumed the office of president temporarily, has been made chairman of the board.

Robert E. Henry, president of Dunean Mills, Greenville, S. C., and Frank I. Neild, of the Neild Mfg. Co., New Bedford, Mass., were re-elected vice-presidents of the Institute. Paul B. Halstead was re-elected secretary and was also made treasurer, succeeding Gerrish H. Milliken, who retired from that position, which he has held since the organization of the Institute.

Several speeches at the Institute meeting voiced criticism of the treatment the industry has received at the hands of government, after being the promulgators of Code No. 1 under the extinct NRA.

Sentiment against any possible revival of the NRA in any form under government supervision was clearly evident in the attitude of the textile manufacturers attending the meeting.

Neild Heads N.A.C.M.

The annual convention of the National Association of Cotton Manufacturers was held in Boston on October 17-18. This organization of New England mill men elected as president Frank I. Neild, presisent of the Neild Mfg. Co., of New Bedford, succeeding Ernest N. Hood, treasurer of the Pequot Mills, Salem, Mass., who has held the position for two years.

John G. Winant, familiar to the textile industry, was the head of the Winant board which submitted a report to President Roosevelt last year following the general textile strike, and now chairman of the National Social Security Board, was one of the convention speakers. He outlined in detail the features of the Social Security Act.

The association in resolution asked the Government to negotiate with Japan for the purpose of limiting imports of Japanese cotton goods into this country, and endorsed the move for the allocation of funds by the Secretary of Agriculture for the payment of an export subsidy on these goods.

Conference of Textile School Deans

A conference of the deans of all of the textile schools of the United States was held at the Red Lion Inn, Stockbridge, Mass., on October 22-24. Floyd W. Jefferson, of Iselin-Jefferson Co., New York City, spoke on "Problems of Merchandising and Marketing", and presented an illuminating picture of the intricacies and problems of textile distribution. Dr. Richard F. Bach, director of industrial relations, Metropolitan Museum of Art, New York City, discussed "Design and Color". "A Working Knowledge of Statistics and Economics" was the subject of a talk by Stanley B. Hunt, director, Textile Economics Bureau, Inc., New York City. Prof. Alfred Williams, professor of industries, Wharton School of Finance and Commerce, University of Pennsylvania, Philadelphia, presented the subject of "Teaching of Applied Economics" in a interesting and practical way.

Such subjects as research in textile schools; the

place of rayon in the textile mill; job analysis; academic subjects taught; development of a closer relationship between the schools and the mills; were among the other subjects discussed.

These semi-annual meetings which are sponsored by the Textile Foundation are the means of bringing together the various ideas and thoughts of those in charge of the country's textile schools, and of discussing mutual school problems with a view to improving textile education to conform to mill needs.

Greenville Textile Show—April 5 to 10, 1937

It has been announced that the dates for the Twelfth Southern Textile Exposition have been set as April 5 to 10, inclusive, 1937. No textile exhibition will be held in Greenville in 1936, but there will be an interesting mechanical and power show in April 1936 in Textile Hall there.

The prospectus for the 1937 Southern Textile Exposition will be issued soon. Demand for space reservations has already been so great that over half of the available space has been applied for by nearly 100 manufacturers of equipment for cotton, wool, silk and rayon mills, and dyeing, bleaching and finishing plants.

At a recent meeting of the organization, S. M. Beattie, president of the Piedmont Manufacturing Company, Piedmont, S. C., was elected a member of the board of directors, succeeding his father, the late William E. Beattie. All other directors were re-elected. The executive personnel will continue as for the past 15 years, with William G. Sirrine as president and treasurer; John A. McPherson, vice-president, and Miss Bertha M. Green, secretary.

Applications for space may be made to Textile Hall Corp., Greenville, S. C. And it is not too early to try to get hotel accommodations for Show Week!

Callaway Mills Hold First Annual Inspection Trip

"OPEN HOUSE" was conducted by Callaway Mills, of LaGrange, Ga., one of the industry's leading organizations, with their first annual inspection tour, held on Thursday and Friday, October 24-25. The object of the tour was to provide an opportunity for the officers and operating staff of the organization, which embraces 11 plants in Georgia and Alabama, to view the scope of the company's plants and activities in all of their phases. In addition to the officers and directors of the company, its operating staff personnel, and members of the sales department, the members of the inspection party included the ministers of LaGrange, the mayor and city council of LaGrange, the Troup County board of commissioners, and several Georgia bankers.

The hosts of the occasion were the active management officials of the company, including Cason J. Callaway, who in October was made chairman of the Board; Fuller E. Callaway, Jr., who succeeds Cason J. Callaway as president, in addition to retaining his previous position as treasurer; and M. M. Trotter, vice-president in charge of manufacturing.

A part of the group attending the first annual inspection tour conducted by Callaway Mills . . . . . .

This first inspection trip to be conducted by the organization was confined to the plants and activities of the organization in LaGrange, where its Unity, Elm City, Valway Rug, Hillside, Calumet LaGrange, Unity Spinning and Oakleaf plants, general offices, vocational school, etc., are located. Later trips will embrace the company's plants in Milstead, Manchester and Hogansville, Ga., and Roanoke, Ala.

All of the LaGrange plants were inspected by the party, and in addition, various of the company's activities, including the splendid vocational school, where textile training is provided for mill employees, both practical and academic, the central testing laboratory, the schools (where an enjoyable program of entertainment was provided by groups of school children), the company's Y. M. C. A. building, etc. The tour included a visit to the memorial tower erected in 1929 to the memory of Fuller E. Callaway, Sr., who founded the organization in 1900; this tower was conceived by and erected through voluntary contributions of the mill's employees.

WARP SIZING, by Paul Seydel (Article I)

The first of a new series, covering the various details of an important process in the mill, in a clear, understandable manner . . . . .

Author's Note:

IN THIS discussion, the writer endeavors to give a picture to the man in the mill of what is taking place when he sizes his warp. The language has been carefully selected, to be as free as possible from the use of scientific terms, and if criticism should arise from scientific minds that adhere strongly to exactness, we hope that the average layman will understand these articles so readily as to more than make up for such criticism.

A GOOD WARP, from a sizing standpoint, is one that feels and weaves well, induces the desired production efficiently and has the desired qualities. What causes a warp to weave well? In order to answer this question we must understand why it is necessary to size the yarn. *First:* Raw yarn has not sufficient tensile strength to overcome the stretch to which it is subjected on the loom. *Second:* It has not enough resistance to abrasion or wear caused by the reed, harness and drop wires rubbing it as it passes through the loom. Therefore, we must so treat it as to add to its tensile strength and protect it from abrasion. In doing this, however, we must keep in mind two other desirable properties of the raw yarn which must not be lessened (but added to) by the use of sizing, viz., its ability to bend, which we call pliability, and its ability to stretch and go back to its original length, which we call elasticity. If we so protect the warp and add to its strength, at the same time, keeping it pliable and elastic without changing the feel or appearance from that desired, then we have a well sized warp.

We find that in order to obtain the desired results we can make use of several different groups of substances. First: Flour and starches. Second: Gums and glues. Third: Lubricants, fats and softeners. Fourth: Weighting materials. Fifth: Chemicals to preserve, to retain and attract moisture and for other special purposes.

By the proper use of one or more of the substances falling in these groups, blended together in the proper manner and proportions, we can get a size that will suit most any condition of weaving, feel and appearance. However, the selection, the proportions and the method of blending is quite a large task which requires very special scientific and practical knowledge.

To give strength we must select those ingredients which, when the size film is made, will seal the fibers and will in themselves have a certain amount of strength. To obtain protection from abrasion, we must select those materials, which, when the size film is made, will be tough and smooth. To keep the pliability, we must select those ingredients, which, when the size film is made, will in themselves be pliable; we must also guard against too much penetration. If all of the fibers are sealed together tightly, where they cannot move and slide upon one another, the yarn will be brittle and stiff. Just sufficient penetration to anchor the size film around the yarn is much more to be desired, because in this way is obtained a soft core and a much more pliable warp. For elasticity, we must use those substances which, when the starch film is made, will produce a film which in itself has elasticity.

Before we can decide on the selection of the different substances that should go into the size mix, it is necessary to first study the composition of raw cotton. There is much literature on this subject but some of it is contradictory. As Josh Billings said: "Books are full of things that are not so." Every chemist agrees with him. Therefore, we ourselves read much literature and made numerous and exhaustive analyses to find out what raw cotton contains. The result is very enlightening.

For our purpose, suffice it to say that the lint

LONG-TIME readers of COTTON will recall that, a number of years ago, we published a series of articles on "Warp Sizing" by Mr. Seydel. At the time and subsequently, there was such a demand for and interest in these discussions that a new series, of which the accompanying article is the first, was prepared and is being presented. These articles, along with the preceding series, comprise a distinct and valuable contribution to practical information on a subject which has perhaps not received attention in textile literature to an extent consistent with its importance.

Mr. Seydel

Mr. Seydel was graduated with honors in 1904 from the "Doctorat en Sciences Chimiques" at the University of Brussels, Belgium, a school that is known internationally for its graduates in chemistry, including Ernest Solvay, the father of the modern soda industry. When Mr. Seydel came to the United States, he began to specialize in textile chemistry and gradually built up a research staff which included a number of chemists. For many years, his occupation has consisted of research, manufacture and actual practice, including products of every textile nature.

The present series will cover fundamentally the different phases of warp sizing, largely with respect to the materials used in the operation of slashing—flour and starches; gums and glues; lubricants, fats and softeners; chemicals; weighting and other chemicals; etc.—which comprised the former series, but with the discussions brought up-to-date in the light of progressive developments subsequently established.—The Editor.

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cotton used in the mills consists of the fiber after being torn from the seeds by a process of ginning. Each fiber represents a single cell, which when unripe is hollow and tubular in formation. When it ripens, it flattens out, assuming tape-like form with round edges. This fiber, when analyzed, is found to be made up of a number of different substances. The fiber itself consists of nearly 90 per cent cellulose; 7 or 8 per cent water.

What is Cotton?

Then, on this fiber, or contained within it, is found about 4/10ths of one per cent wax and oil; 6/10ths of one per cent of substances containing nitrogen and one per cent of mineral salts that remain as the ash when the cotton is burned. The wax is present as a thin layer on the surface of the fiber and renders it water repellent, i.e., before it is made absorbent through scouring, it does not absorb water readily. This wax is similar to Carnauba wax and has a high melting point, around 180 degrees Fahrenheit. In the pure state, it is insoluble in solutions of caustic alkali, therefore, the presence of solvent oils, of tallow and other vegetable and animal fats in the size help to soften this wax and make it more readily removed, which is necessary before bleaching and finishing. The oil in the fiber is the same as that of the seed.

There are a great many other substances of a waxy, oily or resinous nature, the names of which do not mean much to anyone but a trained chemist, however, among them are: Carnaubic acid, palmitic, stearic and oleic acids, ceryl, gossypyl and montanyl. alcohols, triacontane, hentriacontane, phytosterol, amyrin, etc. These products in raw cotton make it advisable, if not necessary, to carefully scour and bleach the fiber before it is subjected to many of the finishing processes. Although ordinary desizing may eliminate most sizing ingredients, it takes very strenuous detergent scouring to emulsify, dissolve and eliminate the waxes and resins which are normal to raw cotton.

The nitrogenous substances come about from the actual compound that nature uses in the synthesis of fiber itself and which we commonly think of as the growth of the plant.

The mineral contents are: chlorides, carbonates, phosphates and sulphates of potassium, sodium, magnesium and calcium and smaller amounts of iron and aluminum. If upon analysis, the ash, which is represented by the above, shows much in excess of one per cent, it is usually due to sand or impurities mixed in with the fiber. It is to some extent the presence of these salts, particularly the chlorides of sodium, potassium, calcium and magnesium, that enables cotton to hold a natural amount of moisture, which is in most instances about six or seven per cent. If stored in a dry place, cotton will lose some of its moisture, but when exposed to humidity the above chlorides, as well as natural physical properties of the fiber, having an attraction for moisture, will bring it back to its normal. Similarly, when stored in a very damp place, these chlorides attract still more moisture and the percentage will go above the normal. The natural moisture in raw cotton will vary not only with atmospheric conditions but also with the amount of chlorides in the raw cotton. Often a chemist will analyze a cloth and find unsaponifiable fats and chlorides which he attributes to the size, whereas, they are natural ingredients of raw cotton, as most of the chlorides and unsaponifiable fats found in cloth are natural to cotton and exist already in larger quantities than can possibly be added through the use of the average size, which is used customarily in this country.

The mineral salts content of all vegetable matter varies with the nature of the soil in which it has grown. If yarns made with raw cotton are scoured and boiled with water, then dried, they do not regain moisture as readily nor as much as warps containing the normal amount of salts of raw cotton. Colored warps made of dried cotton that has been scoured and washed are generally less hygroscopic and will hold less water than warps made of raw, unscoured and undyed cotton. If the scouring has been sufficient the natural wax and oil of this cotton has been removed, as well as the soluble mineral salts and this should be taken into account when advising a size formula for colored warps.

With a full knowledge of the chemical composition of the cotton fiber, the textile chemist is in a better position to judge what is needed to prepare the warp for more efficient weaving and to understand the compatibilities of the ingredients to be added to those already present as well as their compatibilities with ingredients and treatments used in further processing of desizing, bleaching, finishing, storing, etc.

The average amount of these salts, waxes, oils and resins found in raw cotton is about 3½ per cent, however, in looking over results of hundreds of analyses, we find the limits of variation to be as low as 2½ per cent, and as high as 5 per cent. Oftentimes upon analysis, the unsized yarn will lose even more than 5 per cent of weight but this is usually due to mechanical dirt. These variations occur sometimes in the same mill, depending, of course, upon the conditions under which the cotton was grown and the soil. Therefore, it is important in analyzing raw cotton to get a well mixed sample, from quite a number of different bales.

(The second article in this series, to appear next month, will discuss Flour and Starches as used in warp sizing.—The Editor.)

Short Shots, by Old-Timer

No idea, which was ever born in the mind of an overseer or suprintendent, is worth a tinker's dam unless something is done with it.

Have you ever thought what a blessing your mistakes have been to you? That sounds rather foolish, doesn't it? But it is a fact that we gain much valuable experience from our mistakes, especially if we remember them as we should when the same condition arises again. If everything an overseer or a superintendent attempted to do turned out to be a success—well, he would not be doing many things, because he would not have that foundation we call experience.

Bleaching Cotton Piece Goods with Hydrogen Peroxide

By R. E. Rupp
Chief Chemist, Pacific Mills
Lyman, South Carolina

BLEACHERS and others with an interest in bleaching will find this article to be a competent, up-to-date and valuable discussion of the use of hydrogen peroxide for cotton piece goods bleaching. It reflects the opinions and experience of a man well qualified to discuss the subject. A bleacher who read the article in manuscript was high in his praise of the author's efforts really to supply constructive, useful information on a subject of wide interest.

An article on bleaching with chlorine, following a similar outline, will appear in an early issue.

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IT HAS been recognized for a great many years that hydrogen peroxide is a chemical of much merit for bleaching cotton. As long ago as 1850 its adaptability to cotton bleaching was pointed out and a regret expressed because the cost was so high as to prohibit its use. Its preparation from barium peroxide allowed a less costly product, but still too expensive for cotton. Within the last decade the production of hydrogen peroxide has been put on a much larger scale in the United States, and has resulted in further reductions in cost, so that today hydrogen peroxide is finding considerable application as a bleaching agent for cotton as well as for other fibers, both natural and synthetic.

It is not the purpose of this article to attempt a discussion as to the comparative costs of hydrogen peroxide and chlorine bleaching. Let it suffice to say that the cost of peroxide has come down to a point which warrants a careful investigation. Whether it is economically desirable is no doubt a local problem for each mill and depends on the existing equipment, the cloth to be bleached and the results demanded.

When the promoters of peroxide as a bleaching agent for cotton first began an intensive campaign for its use on cotton piece goods they advocated a single boil in which the removal of the dirt and natural impurities was carried out simultaneously with the cellulose bleaching. This procedure was a mistake for the chief obstacle to hydrogen peroxide was cost. It is generally accepted that the most economical removal of the natural waxes and other foreign matter in cotton can be best accomplished with a strongly alkaline solution and at pressures greater than atmospheric. Neither of these conditions is suitable for hydrogen peroxide bleaching, so lower temperatures and less alkali were used. This resulted in an incomplete removal of the foreign matter and required a large amount of peroxide to obtain a satisfactory white. The net result was poorer quality and greater expense. This method found little favor, although the simplicity of putting gray cloth in a kier and in one operation completing the bleach still has an appeal to the cotton bleacher. So, with no doubt considerable help from the cotton bleachers and technicians themselves, the possible advantages of a single boil were discarded for the sake of economy and the two-boil scheme adopted, that is a preliminary boil with caustic under pressure, followed by the peroxide bleaching, in which manner much smaller amounts of peroxide are required. By this method, whatever means the bleacher deems best may be used for the boil-out, or removal of waxes, size and foreign matter. It is self evident that the more thorough and the more complete this preliminary boil-out is, the better and more economical will be the subsequent peroxide bleach.

There has been considerable discussion over the equipment necessary for peroxide bleaching, and this is a question that belongs more properly to the engineer than to the chemist. The equipment generally used is the kier, not that it is necessarily the most approved apparatus, but everybody bleaching piece goods had kiers and if peroxide were to make any headway it could not carry the added cost of new equipment; so kiers were used and iron ones at that. The kiers in which peroxide bleaching is being done most successfully are almost always cement- or silica-lined vessels, for continuous applications of lime. Cement and silica have built up a lining on both the iron walls and the circulation pipes that effectively keeps the kier liquors from much actual contact with the iron. Cement-lined pipes have been used to advantage in the circulation systems when replacing old sections of iron piping.

A kier with a positive pump circulation is generally superior to any circulation depending on temperature differentials or steam flow. One of the primary requirements for good, even, uniform work from the bleach house is an evenly loaded kier and a regular, even distribution and flow of liquor throughout. This is desirable whether the bleaching is peroxide or not, but inasmuch as the bleach too is done in the kier with peroxide, it becomes of even greater importance in this case. If extra devices are required

R. E. Rupp

THE AUTHOR of this interesting article, R. E. Rupp, is widely known as chief chemist at the Pacific Mills, Lyman, S. C. He was graduated from Dickinson College in 1922, with a Sc.B. degree, receiving his degree of Ph.D. in Chemistry at Yale University in 1927. From 1933 to 1926 he was chemist at Cheney Brothers, South Manchester, Conn., and from 1926 to 1933, was chemist at the Pacific Mills, Lawrence, Mass. During 1933 and 1934 he was connected with the sales service department of American Cyanamid & Chemical Corp., and returned to Pacific Mills last year in his present connection as chief chemist at the Lyman plant.

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to insure a regular, and even circulation, then extra devices are necessary. It has usually been found, however, that a good pump circulation in a kier loaded with an automatic piler gives a uniform flow of liquor throughout the kier without any extra accessories. The bleacher probably owes more to the inventor of the kier piler for even boiling than to all of the originators of circulation systems put together.

Loading and Charging the Kier

There has been considerable discussion about loading and charging kiers for bleaching. In the ordinary five-ton kiers the average load is 8,500 to 9,500 pounds of cloth. If the bleaching is preparatory to dyeing with colors which are likely to show rub marks, it is often advisable to have the kier lined with cloth; if not for this class of work, lining is less important. Again, a kier with a short load is more likely to produce rub marks than one loaded to capacity and chained firmly in place.

The charges are usually introduced from the bottom of the kier and by so doing, the air is more readily displaced from the cloth than by filling from the top. It has been pointed out, however, that bottom filling has an upward packing effect upon the cloth against the chains, and might have an effect in the direction of poorer circulation. Actually the point of top or bottom filling is probably of little significance with the bottom method having the preference, if any.

Volume of Liquor—Time of Boiling

The volume of liquor should be sufficient to cover the cloth completely, so that during the boils, both preliminary and bleaching, the fabric is entirely immersed at all times. This may be of minor importance, for successful kier boiling has been done, and is perhaps being done, where the kier liquors are short and insufficient to cover the cloth. Nevertheless, the possible hazards of resists, uneven work, and tender cloth from this practice would seem to more than offset the almost negligible increase in cost due to completely filling the kier.

The time of boiling before bleaching is usually six to ten hours, and this is no doubt much longer than is actually required, for it can be readily demonstrated that a boil for one hour at 15 to 20 pounds pressure removes the waxes, etc., as completely as a six or ten hour boil at the same pressure, if the cloth is intimately and evenly in contact with the liquor. These longer times are still a concession to the memory of the days when loading and circulation were much poorer and the kier liquor did not get in contact with some parts of the kier for six or eight hours. On the other hand, there is but little incentive to carry out an extended study or a series of plant trials, the sole aim of which is to shorten the time of kier boiling. The boiling is usually done in the late afternoons and nights, and the cloth will not be moved from the kier until the following morning in any event. The heat economies offered are small, for much more heat is required in bringing the kier to pressure than for maintaining this temperature. Shortening the boil by three or four hours would show a comparatively small economy in heat. Furthermore, this extra time is a good and not very costly insurance against the possibility that the kier may have been loaded so that the circulation is poor or uneven.

The mechanical phases of loading and boiling can be summed up in two warnings: beware of rubbing the fabric unnecessarily, and do everything possible to assist even and complete circulation throughout the kier.

The Preliminary Boil-off—The Grey Sour

The charge for the boil-off preliminary to peroxide bleaching is a complete problem within itself and one about which many experimental tests, both scientific and not, have been made. As stated previously, the better the results obtained in this process, the better and more economical will be the subsequent bleaching.

The essential requirements for a good preliminary boil out are:

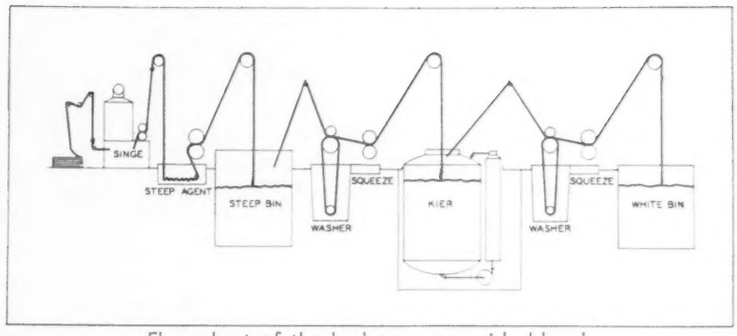
1. A good soft water supply.
2. A thorough removal of the acid soluble minerals before the boil.
3. An alkali of sufficient concentration and causticity to completely saponify the saponifiable material, and to hydrolize as completely as possible the protein, starch and sugar-like components.
4. An emulsifying detergent.

The first is obvious, and so much has been written about the need for good water that no elaboration of this point is necessary.

While perhaps not, as yet, completely adopted throughout the industry, the advantage of a grey sour before loading the cloth into the kier is without question to any one who has experimentally studied the problem. By this sour, ten to twenty pounds of calcium, magnesium, iron, etc., or their salts are removed and instead of having metallic soaps or other organic-metallic deposits to emulsify the corresponding organic acids are present, which not only readily combine with sodium, but in so doing form sodium compounds which have some detergent value in themselves.

The most effective and economical alkalis are the

hydroxides. Potassium is so much more costly, and has never been proven of exceptional superiority, that it is not considered seriously for kier boiling. Of the sodium alkalis, sodium hydroxide is very superior on an equal value basis to any of the others. Statements have been frequently made that the milder alkalis produce a softer fabric. This is true, but true because the mild alkali did not so completely remove the natural cotton waxes and oils as does caustic soda and this fatty matter softens the fabric as well or better than later additions of oil emulsions. An equal effect could have been secured more economically by boiling with an amount of caustic that was insufficient to completely remove the fatty matter. Earlier claims were also made that peroxide bleaching gave a softer hand. This too had its foundation in the fact that the earlier experiments with a one-boil peroxide bleach could not use enough alkali to thoroughly remove the natural oils and waxes and the presence of these caused a softer fabric than one in which they had been completely removed. There has been no convincing scientific evidence offered to show that the cellulose of the fiber is changed by solutions of alkali of low concentrations, such as are generally used in kier boiling. The differences in softness or harshness, obtained by different bleaching materials or processes, unless the fiber is actually changed, are invariably due to differences in the amounts of oil or wax left in the fabric or to differences in the mechanical drying and moisture content. Desirable as this softer feel may be from the point of view of the starcher, it is undesirable if the goods are to be dyed or printed, in which cases the greater and more uniform absorbency resulting from a complete removal of these fatty materials is more important than the softer feel. Any degree of removal of these foreign substances in cotton cellulose can be secured more economically with caustic soda than with the milder alkalis, but for hydrogen peroxide bleaching it is questionable economy to cut down the caustic soda in the first boil and then be compelled to use larger amounts of peroxide because so much oxidizable organic matter had been left from the first boil.



Flow chart of the hydrogen peroxide bleach

Normally unsized cotton contains materials which at the temperature and pressure of the kier boil will react with approximately 2.0 per cent of caustic soda on the weight of cotton boiled. Increasing the caustic up to 4 per cent of the weight of the fiber boiled will show marked improvements in the results obtained. Amounts beyond this (340 pounds NaOH for 8500 pounds cloth in a five-ton kier)are of doubtful value. With this amount of caustic, additions of the milder alkalis such as borates, phosphates, carbonates or silicates, produce very little if any improvement in the quality of the results obtained. This statement will no doubt be met with many contradictions, but it should be kept in mind that the above statements were prefaced as applying to cotton which had been completely soured, and to the use of soft water. If these two conditions are not maintained in the bleach house then some of the above, especially sodium silicate, may be well worth using. It is stated generally that the use of silicates helps to keep the protective coating on the kier walls and this function along with the possibility of an imperfect sour may justify its use. The poorer the water supply, the greater the possibility that the silicates or phosphates may be of some value.

Soaps—Oils—Kier Assistants

The value of soaps, oils and kier assistants is a problem to which the mill chemist could devote a lifetime, and then not be able to investigate all the products offered. The problem may be simplified greatly by dismissing at once all the various mixtures and considering only the legitimate chemicals. By so doing the chances of overlooking anything of value are extremely remote. The author's individual experimental observations have been that the water insoluble solvents such as the hydrocarbons and the halogenated or hydrogenated hydrocarbons are hindrances rather than assistants in producing a good quality boil and complete removal of the foreign matter from cotton cellulose. Further mixing them with soaps or sulfonated oils and silicates or carbonates, does not enhance their value in any way. As wetting agents such mixtures are of value, but not as kier boiling assistants.

Soaps will improve the results obtained and help by assisting in the emulsification of the unsaponifiable matter. At the temperature and pressure of the kier boil most of the experimental work published indicates that the longer chain saturated fatty acid soaps are most effective. The quantities required to give the maximum results are quite small. If no soap is lost by hard water or by incomplete removal of the mineral matter from the cotton previous to the boil, five to ten pounds of actual anhydrous soap are sufficient and as effective as fifty to one hundred pounds.

After the regular pressure kier boil the liquor is drawn off and usually clean water added as the kier liquor is removed. This kier liquor is strongly reducing and the more completely it is removed from the cloth, the less peroxide will be consumed. The actual bleaching can be carried out in the same kier after washing, or the cloth may be pulled into anoth-

er kier through a regular rope washer. The important thing is to secure a good washing, and whether done in the kier or in a rope washer is immaterial if equal results are obtained.

The time, temperature and concentration required for peroxide bleaching are inter-dependent as well as being governed by the quality of the cloth and the results obtained in the first boil. The usual procedure is to use ½ to 1 per cent of 100 vol. hydrogen peroxide on the weight of the cloth and to have the solution made alkaline with silicate of soda and sometimes soda ash or caustic soda. Six hours at 180 degrees to 200 degrees are the usual time and temperature conditions.

Hydrogen peroxide is an oxidizing agent that becomes more vigorous and rapid in its action as the alkalinity of the solution is increased until at high alkalinities the peroxide decomposes with rapid evolution of oxygen. The alkalinity usually recommended is that obtained in a .20 per cent to .30 per cent solution of ordinary liquid silicate of soda. Sometimes further additions of alkali up to .1 per cent caustic soda are made. Whether this is desirable depends in a great measure on the other conditions of the bleach. Silicate is almost universally used, for as well as fixing the alkalinity, it reduces the hazards of tendering from metallic deposits. At the alkalinity obtained by sodium silicate alone, it is satisfactory and probably more efficient to carry out the bleach at 210 degrees to 212 degrees F. than at 180 degrees to 200 degrees F. While cellulose is not readily attacked by hydrogen peroxide, production of oxycellulose with the usual strength losses may occur if the alkalinity is too great at these higher temperatures. This is especially true if excesses of peroxide beyond that necessary to destroy the coloring matter are used.

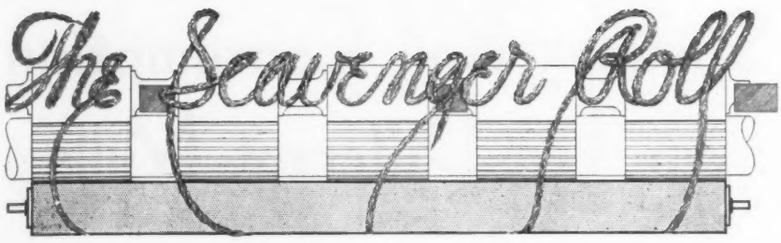
Amount of Peroxide to be Used

The amount of peroxide that is necessary varies with the natural color of the fabric and the quality of white demanded, as well as with the results obtained in the first boil. On average piece goods a white satisfactory for most purposes can be obtained with forty to fifty pounds of 100 vol. peroxide per 9,000 pounds kier of cloth. For dark dye shades or other lines less severe in the white requirements, the amount can be reduced. With these amounts of peroxide the cases of tendering are very infrequent. Weak fabrics are encountered principally when larger amounts of peroxide are used in attempting to bleach very dark fabrics to a good white, or when the preliminary boil is poor and when quantities double or treble the above are used. Such amounts may produce strength losses, especially if high temperatures and high alkalinities are used. In practice it is well worth while to make regular or at least intermittent checks on the bleaching liquors, testing both the alkalinity and peroxide concentration as the bleaching progresses. Rapid loss of peroxide should be a danger warning that the peroxide is decomposing and may result in tender cloth or poor bleaching Such a condition may be caused by alkalinities or temperatures that are too high or may be due to some catalytic decomposition. A kier liquor which shows considerable peroxide after the bleaching is accomplished is wasteful and experiments with reduced amounts should be tried, and the temperature or alkalinity increased to speed up the rate of bleaching.

Effect of Presence of Iron or Iron Compounds

The decomposition of hydrogen peroxide and the accompanying destruction of the cotton fiber in the intimate presence of iron or iron compounds has never been completely explained. In some instances pieces of iron or wire actually twisted through the cloth during the peroxide bleach have caused no damage other than a rust stain and then again, amounts of iron as small as 0.01 per cent in the fabric have caused bad cases of tendering. A real contribution to the science of hydrogen peroxide bleaching will be made by the investigator who clearly explains under what conditions iron is a menace and when not. It may be possible that iron itself is not responsible for the cases of tendering, but that an impurity in the iron, an alloyed metal for example, may cause the peroxide decomposition and fiber strength losses. Without more exact knowledge, the best that can be said is to avoid iron and iron compounds in the cloth as completely as possible in bleaching with peroxide, for bad cases of tendering have occurred in the presence of iron. The outstanding risk in the use of hydrogen peroxide, with excessive amounts of peroxide, excessive amounts of alkali, and iron compounds, is possible tendering, but if these are avoided, no weak fabrics should be obtained. In fact, peroxide probably holds fewer hazards than any other oxidizing agent suitable for cotton bleaching. It requires less equipment than other processes, for beyond the kier the only process is washing through a rope washer. Quality claims for one oxidizing agent over another are without much foundation of fact. If two methods are compared, and one is handled expertly, the other poorly, the quality produced by the first will undoubtedly be superior, but in the next mill the expertness with which the processes are handled may be reversed and therefore the qualities are reversed. To compare any materials or processes both must be tested at the conditions most favorable to that particular material or process in order to get reliable results. It is no doubt violations of this rule which have led to conflicting claims of superior quality for one or another oxidizing agent. There are a number of different oxidizing chemicals that will give equally good white bleaching without destruction of the cotton fiber, and differences of quality are due to the skill of the manipulator in the application of the different materials.

In summary, the preliminary boil is of major importance in determining the results obtained from hydrogen peroxide. The bleaching further depends on the time, temperature and concentrations of both peroxide and alkali. As an oxidizing agent, it must of course be handled with proper care, and, finally, it must be watched carefully, so as not to become too costly.



The Importance of a Laboratory

Since writing the last Scavenger Roll, we've attended one or two conventions of textile men. One man, during a discussion of practical subjects, remarked that the mills must lean more and more upon scientific and laboratory work if they were to run successfully. The man who made this statement is one who has come up through the mill to outstanding success. He is practical in the best sense of the word. His mills are run well and successfully. But he cited instances of operating troubles he had encountered which, he thought, he might have avoided had his oversight and control been along more scientific lines.

We were reminded of a man we quoted in the September 1934 issue of this page, as follows:

"We do not give enough attention to technical research in these organizations. The opinions expressed are rarely backed by figures, and no doubt are often what some of us believe rather than know. Practical experimentation should be directed by technical research methods, and an organization of practical men should employ a technical expert to direct tests of various kinds run in different mills."

These men are, in our opinion, absolutely right. There are men who are examining cotton fibers microscopically in an effort to determine the value of it for their manufacturing purposes. Other men are "beating the invisible waste percentage" by checking the moisture content of their yarn and making sure they are not taking an unreasonable loss in weight because of dry yarn spun from damp cotton.

Were power tests run on that spindle oil you adopted recently?

Were continued tests made on the yarn spun with those new type saddles recently tried and later bought in quantity?

Does someone with an inquiring, scientific mind look after such matters in your plant?

It is our intention to be constructively critical. So we do not leave this question hanging in mid air, if we can prevent it, and we offer,

1) that every mill that expects to continue in business should have a well equipped laboratory and a competent research man for controlling production and checking thoroughly into proposed changes in manufacturing; and

2) that, as our friend recommended, the organizations of practical men should employ a technical research director.

Believe it or not, the day of the scientifically run mill is approaching. Spinners will still piece up ends, picker hands will weigh laps, etc., etc., etc., but exercising a scientific control over this productive work will be men with inquiring, analytical, scientific minds who will, unseen, keep many an end from coming down and picker laps from varying in yard-for-yard weight. It would be amazing how so many mills have survived the hit-or-miss production methods to which they have been subjected if it weren't realized that until recent years practically all of them used similar methods. And only in comparatively recent years has the scientific production of synthetic fibers and fabrics become a serious competitive factor. Review the figures which show the decline in active cotton spinning spindles in this country if you would contend that our production-control methods generally are sufficient.

We shall not soon forget the prophetic note in the remark of that eminently successful practical mill man: "We must lean more heavily upon scientific investigation and work in running our mills."

Do You Date and Cut Your Cots?

We are pleased to have the following paragraph from a Connecticut reader:

"While working as a section man in the spinning room under one of the most efficient overseers in the game, I was taught many seemingly unimportant matters by this fellow and I thank my stars today that I still remember and practice his teachings. One thing on which, to my young mind, he seemed to place too much importance was in preparing top rolls for shipment to the roller coverer. He always insisted that each and every roll be cut through the covering in two places and for the whole width. The idea was to make certain that every roll came back with a new flannel foundation. How many of you know beyond a doubt that every one of your rolls comes back with new flannel as well as new leather?"

We think our friend has broached a very pertinent question and one on which we would like to have the comments of other superintendents and overseers. We would like to pursue the question one step further and ask for recommendations for foundations for leather cots. We've run into some divergent views as to the proper weight, construction and material that should be used for given requirements.

We were interested in reading in COTTON a few months ago the report of a spinners' discussion in which one mill man stated he follows the practice of dating all his leather cots. Whenever a cot requires replacement it can be cut off the roll and there on the inner surface of the cot is the stamped date. Life and service of rolls are thus easily checked. One can also get an idea of the treatment to which the rolls are subjected: for instance, should a cot heavily soaked with oil have been installed a comparatively short time it is evident an oiler needs instruction.

Ageing Cotton Before Cleaning

Is there any virtue in ageing cotton after it has been run through the opening machinery and before it reaches the pickers? We ask this question now because of the recent statement by an authority on opening and picking that room conditions affect the opened cotton to a depth of only a few inches. It is certain that, depending upon the height of the bin, i. e., upon the pressure of the cotton on it, the stock at the lower levels in the ageing bin becomes more compressed than when it was delivered from the condenser on the opening line. We know some excellent fine yarn spinners who are ageing their cotton. Is it a useless operation or not?

A Survey on Spinning Roll Consumption with Figures from Ten Different Mills

HERE are current reports from ten mills on different yarn numbers, giving their consumption of top rolls for spinning, per thousand spindles per week; and also information as to the amount of work done by their roller shops . . . These reports are interesting for comparative purposes . . . We shall be glad to receive similar reports from other mills, and to secure for any reader any further desired information from any of the plants reporting . . . . . .

RECENTLY we submitted to a number of mills doing their own roll covering the following questions:

1. How many spinning top rolls do you require to be covered per week of 40 hours per 1,000 spindles? State yarn numbers, kind and grade of roller covering used, kind and quality of cloth used, etc.
2. What is the average number of rolls covered per man per week of 40 hours? If you wish to answer this by giving us the total number of rolls covered per week of 40 hours and the total number of help in your roller shop, that will be satisfactory.

* * *

The following replies were received:

Mill No. 1.—I am sorry that I cannot give you all of the information asked for in your letter, but will give you what I have. On 20s to 30s yarn we put in 2½ per cent new rolls in each week of 40 hours run. These new rolls are always put in the front line and the good ones are worked to the middle and back lines. We use an all-wool best grade of cloth and the best calfskins we can buy. This gives us a complete set of new rolls in our front line every 20 weeks of 80 hours run and keeps our rollers in all three lines in good shape. Of course, if using short or low grade cotton, it very likely would not keep the rolls in the best shape.

Answering your second question, I will say that one man should cover from 1,500 to 1,700 spinning rolls in 40 hours. We use five men on this work, each one doing one of the operations, such as cutting cloth, putting cloth on the rollers, cutting cots, drawing cots on rollers, and burning down ends, with one man to clean and wash the rollers and wait on the others.

* *

Mill No. 2.—We cover 34 spinning rolls every 40 hours per 1,000 spindles on 30s and 40s. Our skins are sheepskin and our cloth is 16-ounce gray. The average number of rolls covered per man per week of 40 hours is 1,032.

* *

Mill No. 3.—With reference to Question No. 1, wish to advise that our records show that we require 9.65 solid rolls per 1,000 spindles per 40 hours. The roll covering we use is chrome calfskin and genuine tweed roll cloth. I might also mention that the cots are 4⅞ inches long, used on H & B long draft spinning. For your information, we run 12s, 14s and 17s yarn.

In regard to Question No. 2, we have six men in our roller shop. They cover approximately 800 solid rolls in 40 hours when using calfskin, but for your information we find we cover approximately 20 per cent more rolls where sheepskin is used instead of calf.

* *

Mill No. 4.—We use only calfskins for covering rolls and have been using them for the past five years. Before we started on calfskin we used sheepskin. We use one man in the roller shop and he covers the card room rolls and covers all of the wood binders on looms in addition to the rolls for the spinning department. We use solid rolls with two roll bosses to each roll, that is, one solid roll for two strands on spinning. We make 30s warp yarn and 40s filling yarn and we use the best calfskin and use tweed sheeps gray roller cloth on all of our rolls.

In the last 1,920 hours running schedule time we used 9,489 rolls, which is 48 weeks at 40 hours per week on 23,688 spindles. That equals 197.68 rolls per week, or .00834 roll per spindle per week; that equals 8.34 rolls per 1,000 spindles per week of 40 hours run. We average about 38 per week used in the card room on slubbers, intermediates and speeders. We have half of our speeder frames (front rolls) covered with cork.

* *

Mill No. 5.—Answering Question No. 1, we cover 22 top rolls per 1,000 spindles per 40 hours on 20s yarn. We use a chrome calfskin and a white all-wool cloth, 2.75, 22-ounce.

Answering Question No. 2, we find that, on the average, 850 rolls per man in 40 hours is our figure.

* *

Mill No. 6.—As to how many spinning top rolls are required to be covered per week of 40 hours per 1,000 spindles, our requirements based on actual figures are 12. This is based on 40 hours, in other words, if 80 hours running time is considered, the figure would be 24. Our yarn numbers are, filling, 2½s to 26s; warp, 8s to 32s. The average number is filling, 15s; warp, 18s. We are using a 24-ounce best grade all-wool roller cloth, and calfskin.

As to the average number of rolls covered per man per week of 40 hours, we turn out an average of 2,500 spinning rollers per week of 40 hours. We have two men and one girl helper in our roller room. They take care of covering all card room rolls which happen to be equipped complete with leather rolls on fly frames. They also do belt work, apron work, cover

small scavenger rolls, and then there are small jobs along the same line that come up.

* *

Mill No. 7.—Our experience over 13 weeks ending June 2 is as follows:

1. On 22s to 26s yarn we required 8.8 spinning top rolls covered per 1,000 spindles per 40 hours. We are using a 22-ounce all-wool roll cloth and a special treated goatskin.

2. With a crew of four men over the same period we covered an average of 1,340 spinning top rolls and 154 card room rolls per week.

* *

Mill No. 8.—We find that we use 60 rolls per 1,000 spindles in 40 hours. This figures 665 spindle hours per roll. The yarn numbers run from 4s to 23s filling, and 10s to 26s warp. The average number spun was 11s. The record covers a three months' period, and I do not know how this will compare with other mills, for during that time we ran very irregularly, and I think with continuous operation we would make a better showing on roll consumption than the foregoing. This covers a sheepskin cot and a good grade of wool roller cloth.

Answering Question No. 2, the average number of rolls covered per man per week of 40 hours runs 760. Some of these rolls are single boss, and some double boss, but I do not know how many were double boss. If this was all reduced to all single boss rolls it would show a greater number than 760.

* *

Mill No. 9.—From our records we find that we have used an average of 24.2 single rolls per thousand spindles per 40-hour week. These rolls were covered with first quality calfskins. The type of cloth used has been part wool and gray tweed. Our yarn numbers are as follows: Warps, 8s to 32s; filling, 4s to 41s—with average number of about 26s. About 40% of our spindles are long draft, the remainder are regular draft. The average number of rolls covered per man, per week of 40 hours, is 1,051.

* *

Mill No. 10.—Answering Question No. 1, for a period of several weeks we have used 3,100 top rolls for 88,632 spinning spindles in 80 hours. Dividing this by 2 for your period of 40 hours will be 1,550 rolls for 40 hours; or 17.4 rolls per 1,000 spindles for each 40 hours. We are using a chrome tan calfskin for the spinning cots.

Question No. 2.—The total average number of rolls, carding and spinning, covered per 40 hours is 3,400 rolls, single shift operation only in roll shop, divided by 3 hands plus the foreman (4 people), or 850 rolls each. We use a 22-ounce .01 roller cloth for spinning, 26-ounce .01 roller cloth for roving. The reply to this second question is rather indefinite, as these four roller shop hands cover many clearers, top and bottom, and also cover and cement several other rolls in different sections of the mill, as needed; I would estimate that 15 per cent of their time is used for these various jobs. Our yarn numbers are 30s warp and 40s filling for print cloth.

* *

(As stated in the beginning, other mills which did not participate in this survey are invited to submit their own roll covering figures for comparison.)

We Cut Our Roller Consumption After Reading This Survey

One of the mill men who contributed to the accompanying survey has kindly told us of how it helped him to reduce his roller bill—and how he did it . . . . . .

IF I COULD write as an expert on roller covering and tell you of some marvelous idea that would cut your roller cost in half, it would afford me great satisfaction. But I can't do that. Instead, I must admit that I am merely a middle aged, none-too-smart individual who has tried all the fancy ideas and materials for roller covering for the past 10 years. You may agree or disagree with the conclusions I have formed. For your guidance, and possibly to save you from wasting time reading further, I refer you to the interesting figures which COTTON has compiled from 10 mills with reference to their experience on roller covering for spinning rollers.

My mill is No. 6, showing 12 rollers installed per 40,000 spindle hours on 2½s to 32s yarn. You will notice that three other mills in the survey were using even less than 12. In the face of these lower figures I can best let the survey be my starting point, and say that since receiving these figures from COTTON I have decreased my figure to 5.75 rollers installed per 40,000 spindle hours. Now we're getting somewhere! I've got my figure down to where I can say my speech about roller covering and I'd better hurry before one of you gets a still lower figure.

In all fairness to COTTON and its surveys, I must say right here that I have derived a lot of good from them. More of us should participate—it's a little work but usually we gain in more thorough knowledge and frequently in lowered cost or increased efficiency. Take this roller covering survey. My first figure was 12 rollers per 40,000 spindle hours. After getting the figures from the other mills, we made a special study of our roller covering, and found that some of our rolls were not wearing out but were slipping on the iron roll. After trying a different glue, we finally found that the glue was O. K., but the flutes in the iron roll were filled with old glue which boiling in lye did not remove. So we used a home-made machine using two rolls covered with stripper fillet to clean out this old glue from the flutes. This has stopped the slippage, and that plus a few small things such as the section men replacing rolls before necessary, has brought our figure from 12 down to 5.75 per 40,000 spindle hours.

For comparison, you may be interested in the material used to obtain the results I have given. To make a long story short, we have tried all the various things offered for reducing roller covering costs. We have tried cheap material which, after a short period of lowered cost, ran our roller cost sky high and our nervous systems ragged. We will never forget the cheap cloth we once used that gradually packed down where the yarn ran until it finally caused our yarn to have small lumps somewhat like cockled yarn. It finally got so bad that it almost shut our spooling and warping down. No, we will never forget it nor use it again.

It has taken us about 10 years to learn what I found in an old book recently. The book was published in 1893—more than 40 years ago. Let us quote from the book:

"Cheap roller cloths are a mistaken economy, and often the best roller leather is condemned and wasted by their use. The best quality cloth covered with the best quality leather both are equally essential to economy and good work."

And in this very modern year of 1935 we not only agree with the old gentleman but practice what he preached.

◆ ◆

Some Notes on Weaving Double-and Triple-Width Fabrics

By Howard Price Galloway

MANY a mill finds itself, occasionally, called upon to weave cloth wider than the limits of its looms. The requirement may be for a fabric twice as wide as the available reed space, or even three times the usual width. At first glance this would seem an impossibility; yet by the use of ingeniously arranged harness chains, as shown in the accompanying diagrams, it is easily possible to obtain the desired result.

Figure 1 shows the chain draft and drawing-in draft for a plain weave cloth that will open up to twice the reed width at which it is woven. Figure 2 gives a view of this cloth in cross-section, as woven and opened out.

Figures 3 and 4 comprise the chain draft and drawing-in draft, and the cross-section of a similar plain weave fabric, this one opening out to three times the normal width.

Figure 5 shows the chain draft and drawing-in draft for a two and two twill fabric which will open to double its reed width. Figure 6 is a cross-section of this fabric.

WE PRESENT this discussion as being of interest to weaving mills and others, from the standpoint of novelty. One of the best textile designers we know, who read the material in advance, commented: "From the standpoint of the theory of designing and weaving, the article is correct. The double-width plain cloth is woven regularly by a number of mills. It is exactly like tubular pillow case weaving except that the two widths are joined on one selvage and left open on the other.

"I have never seen a practical use for the triple width cloth. A narrow loom could never compete with wide looms on such a fabric. To make a 64x64 sheeting in the triple width we would have to make it 192x192 on the narrow loom. Just think of the crowded reed, the chafed warp yarn, and the low production. In addition to these objections, the warp ends would be either crowded or distorted at each fold where the selvage would normally be. Such an idea is all right for tobacco cloths and similar fabrics of low count and where the appearance of the cloth does not make much difference."—THE EDITOR.

◆ ◆

In Figures 7 and 8 are shown, respectively, the drafts for, and cross-section of, a two and two twill fabric which will open to three times the width at which it is woven.

It will be perfectly clear to the reader on each cross-section (Figures 2, 4, 6, and 8) which sides

At right, Fig. 1 to Fig. 4 inclusive, showing chain plan, drawing in draft, etc., on a double-width and triple-width fabric.

FIG. 1

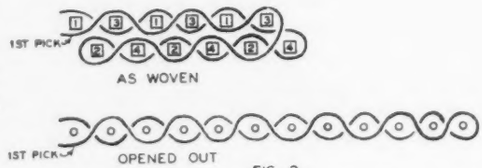


FIG. 2

Below, Fig. 5 and Fig. 6, covering a two and two twill fabric, woven double-width.

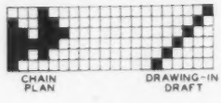


FIG. 3

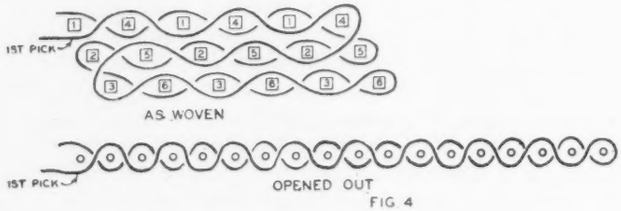


FIG. 4

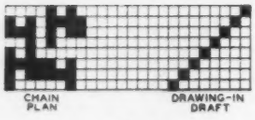


FIG. 5

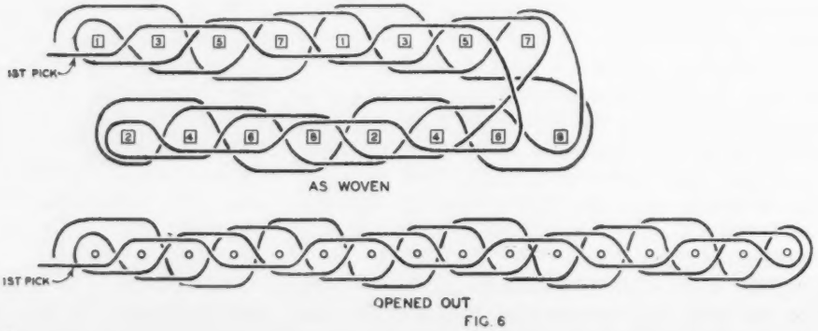


FIG. 6

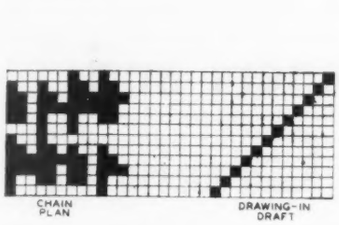
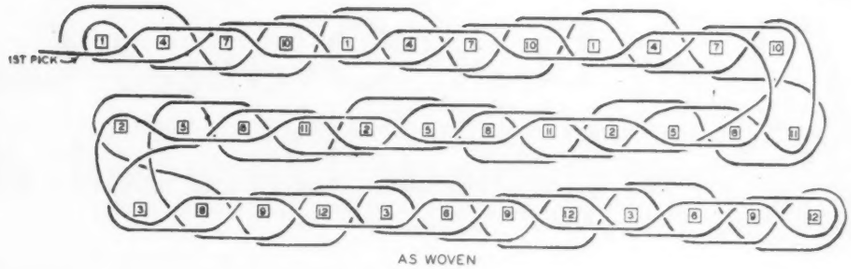


FIG. 7



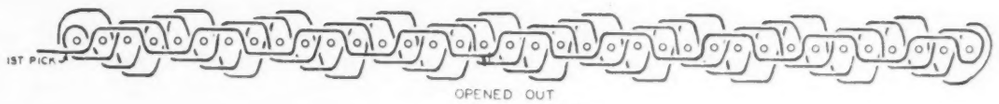


FIG. 8

Fig. 7 and Fig. 8, showing a two and two twill fabric, woven triple-width.

of the cloth will become face and back when the fabric is opened out to its greatest width. It must be remembered that since the two sections of the double-width cloth Figures 1 and 5) are woven at the same time, one above the other, twice as many ends and picks per inch must be inserted as will appear in the finished fabric. In the case of the triple-width cloths (Figures 3 and 7) three times the number of ends and picks per inch desired in the cloth must be used.

Two successive picks must be woven from the same shuttle, beginning with the first bar of the chain, and at the left hand side of the cloth, in the case of the double width fabrics. Three consecutive picks from the same shuttle, beginning also at the left hand side of the cloth, and with the first bar of the chain, are necessary when weaving the triple-width fabrics. Otherwise, the cloth will show holes along the fold lines when it is opened out. However, if desired, a single shuttle may be used throughout, in either the double- or triple-width weaving.

Fabrics woven in this manner will not in any sense be "freak" cloths. Each of the chain and drawing-in drafts shown will produce either a perfect plain weave or twill, double- or triple-width fabric.

Working Postures Important Factor in Labor Costs

The postures of operators' arms and other body parts, whether in standing or sitting positions, should receive particular attention on the part of time study men, according to Dean F. W. Shumard of the National School of Time Study, Norwalk, Conn., in a recent address to his students.

"The proper height of work whether standing or sitting should be about two inches below the elbow height of the operator," stated Dean F. W. Shumard. "If the machine or work is of such dimensions as to prevent this maintenance of height for all sections, then the mean section requiring the longest sustained effort as perhaps indicated by the longer time element, becomes the basis for rest allowances. Elements for other sections which impose undue stretching, reaching, stooping, etc., must also be rewarded by heavier time allowances.

"If the work station requires continual standing on concrete or other types of unyielding floors, an operator should stand on a fabric mat or on a soft wooden sub-platform to counteract the effects of vitality-reducing floors.

"Valuable data have been collected in the past few years by industrial and medical experts that prove the wisdom of having bench, chair or stool heights carefully specified for the minimizing of fatigue. Their figures prove that production costs in many instances have been materially lowered by using benches and chairs that are not only of proper height, but correct design as well has resulted in added fatigue elimination.

"The correct height and general design of a work bench should be determined by the kind of work to be performed on it and also by the average height of operators to be assigned to the bench. The height of benches should be from 29 inches to 39 inches as measured from the floor or subfloor to the top surface of the bench. The top surfaces should not be over 3 inches in thickness (less if possible) and there should be no interfering braces or supports that will prevent sitting operators from placing their knees well under each bench. Sitting operators should rest their feet on a foot rest about 10 inches wide, which is installed in a tipped position to the lower part of the bench. The front edge of the foot rest should be about 10 inches or 11 inches from the floor and flush with the front edge of the bench. The back of the inclined foot rest should be about 2 inches higher than the front edge. This foot rest, if adjustable, can be modified slightly to suit the convenience of different operators.

"The stool or chair used for sedentary operators should also receive marked attention. Professional chair makers who have made investigations of fatigue, supply industrial chairs having wooden, saddle type seats with suitable back rests. The chairs are adjustable ranging from 25 inches to 31 inches from floor to front edge of the chair seat. Where work is made up mostly of pressing attitudes, as when using screw drivers, electric drills, etc., the back edge of the chair seat should be raised enough to compensate for the strain of posture.

"Standing or sitting positions are tiresome, if either is constantly maintained all day without change. An operation which requires alternate standing and sitting is the ideal combination of work to keep fatigue at its minimum level. Where this type of combination of standing-sitting postures is not feasible, the time study man can often prescribe an incidental element of work in the cycle which requires the operator walking a short distance to obtain or to deliver small quantities of work or for tools. This type of incidental element on monotonous operations offers relaxation in the form of productive work instead of heavier rest allowances."

Long Draft, Overhead Cleaners and Other Subjects Discussed at Greenville

THE fall meeting of the South Carolina Spinning Division of the Southern Textile Association was held in the Public Library at Greenville, S. C., on Saturday morning, October 26. Joe C. Cobb, chairman of the division, presided. An interesting set of questions had been prepared for discussion, and while those attending participated freely, the attendance was disappointingly small, and this detracted from the value of the meeting.

Subjects pertaining to the spinning room, and applying largely to the print cloth range of numbers generally prevalent in the South Carolina area, were taken up. Mr. Cobb had prepared in advance a questionnaire of topics, and the subjects were taken up in order.

The first question was, "Are roller bearing spindles a good investment over the standard spindle built by machine builders today? (a) How much higher spindle speed will they stand?" Unfortunately, no one present was equipped or inclined to discuss this.

"With long draft equipment, and using single roving, how long a draft is permissible (on filling) consistent with satisfactory yarn for weaving print cloths?" was next asked. George T. Fleming, overseer of spinning, Piedmont (S. C.) Manufacturing Co., reported drafts of 16 on 14s filling and 20 on 23s filling, using single roving made from 7/8-inch local cotton; but stated that his numbers do not go up to the print cloth range. J. W. Robinson, of Pacific Mills, Columbia, S. C., reported using long draft only on warp, for print cloths, with a draft of 16.75 making 30.25s warp, double roving, from inch-plus cotton.

Newton G. Hardie, superintendent, Inman (S. C.) Mills, asked if anybody is running long draft on print cloth warp, using single roving. H. Thompson, overseer of spinning, Chiquola Mfg. Co., Honea Path, S. C., reported that he has two frames, running 30s from 1.60-hank single roving, with a draft of 20.5. He stated that the yarn from these test frames has practically the same breaking strength as his regular warp. Called upon, H. P. Walker of Springstein mills reported they use double roving on their long draft, with a draft of 19 for 30s warp.

Shell Rolls on Spinning

"On spinning, what are the advantages of shell top rolls over solid rolls, if any?" was next asked by Chairman Cobb. A. L. Ellis, overseer of spinning, Pelzer (S. C.) Mfg. Co., stated that he has been using shell rolls for 19 years on warp and filling, and likes them all right. He said the shell roll "doesn't wear out your front saddles and cap bar fingers. You oil them with a spring bottom cup, using a 7/0 oil, and we oil these shell rolls every two weeks." He is on numbers from 13s to 30s warp and 27s to 40s filling. J. L. Brannan asked for the practice of men as to oiling solid rolls. Mr. Thompson reported that he oils the front rolls every day and the middle and back rolls twice a week—on an 80-hour weekly schedule. W. R. Connelly of Pacific Mills, Columbia, reported oiling solid rolls twice a week on the front, and once a week on the middle and back.

John S. Lockman, overseer of spinning, Monarch Mills, Lockhart, S. C., gave it as his experience that shell rolls do not wear out the tips with the rolls set the same distance apart; that he oils shell rolls (double boss) every two weeks; that he finds they do not get as much oil on the ends of the rolls, as with solid rolls, and therefore not as much oily yarn. He uses shell rolls on 30s warp and 40s filling.

Drafts Secured with Long Draft

The next question requested "the actual figures as to average drafts which you are running on long draft spinning; state yarn number, hank roving, twist, etc."

John S. Lockman reported an installation of four frames on long draft of different makes. "I get from

JOSEPH C. COBB, of Chiquola Mfg. Co., Honea Path, S. C., chairman of the South Carolina Spinning Division, who presided at the Greenville meeting . . . . . .

20.68 to 21.68 draft on 30s warp made from double "Super-Draft" roving, 1 1/8-inch cotton, 3.00-hank roving. Our twist is 25.30 and 25.40 turns. J. W. Robinson reported draft of 16.75, 25.18 twist, on 30s warp made from 3.50-hank roving, inch-plus western cotton. He said he gets a breaking strength of 64 to 68 pounds, that a recent test showed his ends down to be 27 to 30 per 1,000 spindle hours (*including* ends down at doffing); that, with cleaning hands, his spinners run 1,904 spindles, the cleaners taking care of 3,168 spindles. John S. Lockman said his breaking strength is from 70 to 77 pounds. Mr. Sharp, of Victor-Monaghan, reported running 30s from 2.80-hank roving, 1 1/32-inch cotton. His spinners tend 1,220 spindles. W. E. Hammond, superintendent, Balfour (N. C.) Mills, stated he runs a draft of 15.31 on long draft, making 30s warp, with 26 turns of twist, and 60 pounds breaking strength, from 1-inch

Reported by Robert W. Philip

western cotton. "We have gone as high as 18 draft," said, "but the reason I made it shorter is that we use the same draft on old regular roll spinning, double roving."

Newton G. Hardie reported an end breakage on 30s warp of 40 to 45 per 1,000 spindle hours, not including ends down at doffing. Thomas J. Willis, of Greenwood (S. C.) Cotton Mills, reported drafting 18.60 on 31s warp, and 18 to 21 on 40s filling, double roving; using 3.50-hank on warp and 4.40-hank on filling, with 1-inch cotton on warp and 1⅛-inch on filling.

John S. Lockman asked why the better cotton was used on the filling. J. F. Chalmers, superintendent at Greenwood, replied that John Lockman, who is a spinner, had asked that, and Frank Lockman, superintendent at Lockhart, who had been an overseer of weaving, could best answer it—that it is done for better weaving results.

Spinning Break Drafts

The next question asked for discussion on the best break draft to use on regular spinning, with short draft and longer draft. John S. Lockman reported that on short draft, single roving, 7½ to 8 draft, he had used 1.05 break draft. H. Thompson, of Honea Path, reported changing from 1.07 to 1.12 on 52 frames drafting 16 on 40s from 1 1/32-inch Middling cotton, and that he got better and more even work with less ends down. W. E. Hammond brought out that recently some machine builders had increased the space or distance between the back and middle rolls, with the same break draft. "I run 5 teeth difference now instead of 2 or 3," said John S. Lockman, "and the reason I do this is to keep the roving from running out at the side."

The seventh question called for discussion of twist multiples, but there was no discussion, beyond Mr. Hammond pointing out that this factor varies between types of cotton, new and old cotton, etc. J. L. Brannan did bring out that with light card production, some twist could be taken out at the spinning, as compared with a heavy card production.

"Can 30s yarn of good quality be made out of Middling ⅞-inch cotton with long draft?" was the next question. "I think it can if you get your settings, drafts, twists and speeds right," said John S. Lockman. Mr. Cobb asked whether anyone present is doing this, but there was no answer.

"In a well run mill making 30s and 40s yarn out of 1-inch cotton, will the gain in production brought about by lower twist and higher speed more than offset the additional cost of 1 1/16-inch cotton, so as to make it profitable to use?" was the next question. Newton G. Hardie brought out that this depends upon the difference in the price of the two staple lengths; several men stated that if the prices were proportionate, the longer cotton would be more economical.

Cork and Leather Rolls on Spinning

"If you were planning to install new long draft spinning, would you have your top rolls covered with cork or calf skin? Which will give a smoother yarn, the best breaking strength? How does your cost compare on the cork against calf skin?" This was the next question.

"I use calf skin," replied W. E. Hammond. "I have tried the cork on regular draft, but never on the long draft, and I did not like the cork."

"I would cover mine with cork," answered J. F. Chalmers. "I do not think it improves the yarn much, if any, but it is cheaper by 50 per cent. Of course, if you get a cotton of low character, leather is better, but with a good bodied cotton I prefer the cork." Answering questions, he said the arbors on his rolls are turned down; that most of his present spinning was bought with small arbors to accommodate the cork.

J. S. Lockman expressed a preference for sheepskin instead of cork or calf skin. He said he had not found anyone on long draft with a lower roller covering bill than his. Mr. Smith, who formerly was with a worsted mill, declared that the cork roll is inclined to pick up the fibers, whereas something slick like calf skin will let them go on through.

"The trouble I found with calf skin was that it breaks loose in the burning down," said J. S. Lockman, adding that "they may have learned since how to prevent this."

"I changed from sheepskin to calf," said W. E. Hammond, "and we have lowered our consumption of cots by 50 per cent. It does take a roller coverer longer to learn how to put on the calf skin, but now there are calf skins on which you do not lose any more than with sheepskin." Answering another question, Mr. Hammond declared that it is necessary to have better roller shop equipment in using calf skin.

Newton Hardie asked about trouble with "eyebrows" in using calf skin. Mr. Hammond replied that the calf skin produces more "eye brows", but that they can be readily eliminated by fastening a ½-inch strip of leather right across the front of the clearer. (This idea was described and illustrated in The Scavenger Roll department on page 48 of the August 1933 issue of COTTON. — The Editor.) W. W. Cobb, of Norris Cotton Mills, Cateechee, S. C., also reported using this idea with complete satisfaction. He said he fastens this strip of leather to the clearer, and that it throws the clearer waste formed as eye-brows right back into the clearer.

Overhead Cleaners in Spinning Room

"What type of overhead cleaning system have you found to do the best work? When installing the overhead cleaning system do you do anything to your spinning creels to make them shed the lint and dirt?" This was next asked by the chairman.

Two men at the meeting reported the use of overhead cleaners; however, practically everyone present indicated he would like to have them in his spinning room. J. F. Chalmers of Greenwood first reported, stating that when his were installed, he preferred the type which runs on a ceiling track. "There are numerous advantages with these cleaners," he said. "They practically eliminate the cleaning that the spinners had to do. They help in keeping out gouts. We noticed that on our Barber-Colman spoolers just as soon as we put the cleaners in." He add-

ed, however, that he has one problem, which is that the air draft from the cleaners seems to catch the free moisture from the humidifiers and deposit it on the rings.

G. T. Fleming, of Piedmont, reported the use of both types of overhead cleaner, expressing a preference for the type which runs on a track mounted on the creel of the spinning frame, which, he said, keeps the creels cleaner. After installing the cleaners, his spinners were able to handle two more sides, due to a decrease in their duties in the way of cleaning.

The chairman asked as to any trouble of upkeep with the cleaners, Mr. Chalmers replying that his have been installed about four years, and have been no expense as to upkeep and maintenance.

It was at this point that, answering a request from the chairman for a show of hands, practically everyone present indicated he would like to have the overhead cleaners if he could get them.

Someone asked whether the humidity was changed by the use of the cleaners. Mr. Chalmers replied that he did not change his humidity on account of the cleaners, but that on account of installing long draft equipment, which was put in about the same time, he had decreased his humidity by about 5 per cent down to 50 per cent. Mr. Fleming added he had made no change in his humidity as a result of the cleaners.

"Do the cleaners make any difference in the temperature of the room?" asked John S. Lockman. Mr. Chalmers replied that "there is no noticeable difference, but it is reasonable to assume that you will get a better circulation of the air and heat with these traveling cleaners."

Answering a question from Howard R. Hart, of United Merchants & Manufacturers, Mr. Chalmers said they are using the high-duty head type of humidifier and that they are now changing the location of the heads, raising them higher in order to get more distance between the cleaners and the humidifiers in the hope of correcting the trouble he mentioned.

Vibrating Filling Quills

Mr. Hammond here raised the question of vibrating filling quills. He said he had tested four different makes, eliminating the spindle as a probable cause, and had found many wobbly or shaky quills in the lot. John S. Lockman observed that, "I think that has always been true ever since we have had quills, but most of us have always been so glad to get new quills of any kind, that we have just begun to pay attention to it."

Mr. Smith of Inman asked how many present test their quills upon receipt. Several indicated they are doing this. J. H. Nichols, overseer of spinning, Monarch Mills, Union, S. C., said "we used to have a lot of that trouble of vibrating quills, but now we go through each lot and test each quill on a true spindle, throwing out all that are not right." He said when he first started this practice he found quite a lot of quills that had to be sent back, but that now, since the bobbin makers have learned that he tests each quill, he does not have much of this trouble; that out of a recent order of 10,000 quills, he found only 30 that were not satisfactory. F. W. Waldrop, overseer of spinning, Drayton Mills, Spartanburg, said he believed some of the quill trouble is due to the fact that the quills are conditioned, and this treatment seems to get them "out of true". He said he tests each new quill upon receipt, and that, even with enameled ones, the conditioning affects them; and that on plain quills, the moisture of the weave room will cause them to become crooked.

Several men indicated they use brass tips in the top and bottom of their quills, in answer to a question. Mr. Hammond brought out that the batteries on the newer looms will handle quills with a variation up to ⅛-inch, but that on the older batteries, the brass tip is helpful in assisting toward a correct transfer with worn bobbins.

Preventing Sloughed-Off Filling

John S. Lockman asked which type of bobbin is better to prevent filling from sloughing off—the "male" type with raised ridges, or the "female", with grooves. J. F. Chalmers declared that he uses the raised-ridge or Lonsdale type of quill. Asked as to when he has sloughed-off filling, Mr. Chalmers said it shows up mainly on Monday mornings, after the week-end shut down, due largely to using a conditioned filling. Joe C. Cobb reported a practice to get away from this trouble—that is, allowing the batteries to run down on Friday nights, then having the watchman spray the filling in boxes several times on Saturday and Sunday with a bucket of the conditioning fluid, then having the battery hands, who had gotten off early on Friday, come in a little early on Monday to fill the batteries.

With regard to the different types of bobbins, Mr. Chalmers pointed out that if using a quill cleaning machine, "you must use the kind of bobbin that will go through it satisfactorily". W. W. Cobb mentioned that the quill cleaner manufacturers now have a fiber jaw that makes the problem much easier.

W. W. Cobb brought up the question of results from cutting out a roving process in making print cloth yarns. Reporting for himself, he said that on filling, he had been experimenting with taking the roving from the slubber and intermediate to the spinning and doubling it there, but had not gotten far enough to report any results. On his warp, he is skipping the intermediate, taking the roving from the slubber to the speeder, 8x4, 4.00 hank double in spinning, and that he believes this is preferable to running it single in the spinning, 2.75-hank.

Two of the men present next briefly discussed the use of long-draft roving equipment, both declaring they could not get quite as good yarn from roving made on the new equipment as with the regular processes of fly frames.

This concluded the discussion. Chairman Cobb made an appeal for more co-operation from the individual men, asking them to submit any questions to be discussed at the next meeting, and to do this promptly, so the committee could arrange the questionnaire and assign the questions well in advance of the next meeting, which will be held in Spartanburg next Spring.

THE PIONEER--By William P. Jacobs

The fourth of a series, taken from Mr. Jacobs' new book and presenting the lives, records and achievements of some Southern textile pioneers . . .

THIS is the fourth installment of our reproduction, in large part, of the new book by Mr. Jacobs, "The Pioneer", delineating the lives and records of pioneer southern textile executives. The current installment includes stories on James W. Cannon, John Henry Montgomery, Fuler E. Callaway, and William A. Erwin . . . . . .

JAMES W. CANNON

James W. Cannon, one of the deans of the southern textile industry and the greatest manufacturer of towels in the world, ranked among the leading business men, not only of the South, but of the entire United States. He was a merchant as well as a manufacturer, a trader of superlative ability, a virile personality. He was considered the oracle of the industry and was constantly sought for advice by younger men who came to rest their burden of trouble on his willing shoulders.

Mr. Cannon's success was due largely to his vision. He first saw the vision, dimly, as a boy of fourteen, when he left the farm in Mecklenburg County, N. C., where he was born, and started in as a clerk in a general store in Concord. His pay for the first year was $48 a year and his board, and there was mighty little time allowed for vision in the hours he had to work.

At twenty, however, Mr. Cannon established himself well enough to start a store of his own. Within a few years he had built up his business to a point where he could build no more, for the Concord territory could not support a larger trade. Like Alexander the Great, he pined for new worlds to conquer. He found them and out of his experience he took one of the first principles of business success:

"Don't limit yourself. Pick out the biggest field you can find, and the biggest goal in it, and aim for it."

That was what Mr. Cannon did. He broke away from the mercantile trade because the circle of buyers was limited, and embarked in an industry whose product he could sell all over the world. In 1888 he organized the Cannon Manufacturing Co., at Concord, with a capital stock of $75,000. He built a 4,000 spindle mill—Lilliputian compared to the present Cannon Manufacturing Company. But it was the genesis of the largest towel plant in the world, with mills at York, S. C., Concord and Kannapolis, N. C., a "Cannon" town built by Mr. Cannon, consisting only of his plant and the residences of his workers. In addition Mr. Cannon assisted in the organization of or was largely interested in about twenty other mill properties, with 600,000 spindles and more than 10,000 looms.

Mr. Cannon's success was due to the trading and merchandising ability which was his original gift of genius, and to two attributes of character. One was absolute integrity, the other the will to give all he had to his work. "Put in more than you take out," he said. "A tree won't grow unless you fertilize it." His honesty was never questioned; consequently he never failed to obtain credit when he needed it. He agreed with the view that bankers should judge a man who applies for a loan by his character rather than by his financial standing, and made use of this standard in his own judgment. "There goes a man," he once said, "who can have anything I've got. I trust him." Mr. Cannon built up this reputation by hard work, so hard that it was his only interest. He avoided expanding his interests too much outside of the cotton manufacturing field. No manufacturer has been quicker to absorb modern ideas and to act on them. His buildings are conspicuous for their up-to-date appearance, their cleanliness, and the care taken of them and their equipment. His mill villages are models.

In 1900 Mr. Cannon organized a commission house under the firm name of "Cannon Mills," in New York City. This has grown to include offices in many other cities and markets not only the product of the Cannon chain, but of many other mills in addition.

Mr. Cannon found happiness as well as success in his long and useful life. He married young and fortunately, and had ten children. His youngest son, Charles A. Cannon, is now president of the Cannon Manufacturing Co., succeeding his father.

JOHN HENRY MONTGOMERY

No sketch of the southern textile industry would be complete without a review of the activities of Captain John Henry Montgomery. To the younger generation of cotton manufacturers, his name is largely a memory, for he died in 1902, from a fall suffered while inspecting work on the erection of the plant of Gainesville Cotton Mills. Several great organizations stand as memorials to his achievements, chief among these being the Pacolet Manufacturing Co. at Pacolet, S. C., with mills also at New Holland, Ga.; the Spartan Mills at Spartanburg, S. C., and the Gainesville Cotton Mills at Gainesville, Ga.

Captain Montgomery, as he was known to his friends and business associates, was born in 1833, the eldest of a large family of children and a member of a family distinguished in British history. Among his ancestors are a number of members of the aristocracy of England, Wales, Scotland and Ireland. His great-great-grandfather was of Scotch-Irish descent. He moved to Pennsylvania from the North of Ireland before the Revolution, and settled finally in Spartanburg, S. C.

The early training of John Henry Montgomery was along mercantile lines, and rather humble ones at that. In 1852, at the age of nineteen, he became a clerk in a country store near Spartanburg at the princely salary of $5 per month and board. He held this position for a year, and then went to Columbia, where he became a clerk in another store. He later formed a partnership with a brother-in-law in general merchandising business at Hobbyville, S. C. After the loss of his partner, he conducted a mercantile business in connection with a small tannery until the outbreak of the Civil War, when, in December, 1861, he enrolled as a volunteer in the 18th Regiment, S. C. V. Later he was made commissary with the rank of Captain, and in 1863 became assistant commissary of the brigade, and in 1864 he was appointed assistant division commissary. While he was in the army, his family subsisted on the proceeds from a small farm. In 1865, on his return

from the war, he found that he was in possession of a small stock of leather in his tannery, and with this he set to work to restore his fallen fortunes.

His business abilities, which were strikingly demonstrated later in life, displayed themselves through the recognition of the possibilities of commercial fertilizers in the South. The restoration of the depleted soil of the South became more or less of a passion with him, and he experimented with the use commercial fertilizers on his farm. He showed his neighbors the importance of stimulating plant growth through this agency, and subsequently became engaged in the fertilizer business. He built warehouses in Spartanburg, where his family moved in 1874. His business grew to such an extent that he expanded its scope and took into partnership Walker and Flemming and thenceforth operated under the name of Walker, Flemming & Company. Prosperity came to him, and in 1874 he became a partner in the firm of Walker, Flemming & Company, dealers in fertilizers at Spartanburg.

It was in 1881 when the firm of Walker, Flemming & Company purchased certain water power rights on the Pacolet River, known as Trough Shoals, that he made his debut into the textile world. Upon a site adjacent to the water power, a cotton mill was erected in 1881, and this became the first unit of the Pacolet Manufacturing Company of which Captain Montgomery was chosen president and treasurer. The mill at the outset consisted of 10,000 spindles. In 1887 he increased it to 20,000, and in 1893 he doubled it again to 40,000 spindles. In 1900 he built a 20,000 spindle mill at New Holland, Georgia. Under the guidance of Captain Montgomery the capital stock of Pacolet Manufacturing Company was increased four times—$300,000 to $450,000 to $700,000, to $1,000,000. Its equipment and production have been considerably increased since that time.

Captain Montgomery next, in 1889, organized the Spartan Mills, of which he also became president and treasurer, and under his management and that of his sons and grandsons, this plant grew to a capacity of 85,000 ring spindles, 1,100 broad and 1,490 narrow looms, the company's product comprising print cloths, broadcloths and sheetings. Captain Montgomery also became interested in the Gainesville Cotton Mills, Gainesville, Georgia; the Whitney Mills, Whitney, S. C.; the Lockhart Mills, Lockhart, S. C.; the Clifton Mills, Clifton, S. C., and the Morgan Iron Works.

During a long and fruitful life Captain Montgomery won the reputation of a generous and public spirited citizen, and was an active worker in stimulating the educational facilities of the South. He became president of the Cooper Limestone Institute, now known as Limestone College, which owes much of its growth and success to his excellent business judgment and financial aid.

The industrial work of Captain Montgomery has been ably carried on by his sons and grandsons, as have his public-spirited efforts. Victor M. Montgomery succeeded his father as president and treasurer of the Pacolet Manufacturing Company and the Gainesville Cotton Mills. He was later also made treasurer and general manager of Whitney Manufacturing Co. of Spartanburg, S. C. He was active in the development of the industry, serving faithfully until his death in 1934 as treasurer of the traffic committee of the Cotton Manufacturers Associations of Georgia, North Carolina, South Carolina, and the American Cotton Manufacturers Association. He served as president of the Cotton Manufacturers Association of South Carolina for a term and occupied a prominent position in other associations of cotton manufacturers. Benjamin W. Montgomery served as assistant treasurer of Pacolet Mfg. Co. He was most active, however, in Drayton Mills of Spartanburg, S. C., of which he was president and treasurer until his death, which occurred in 1933. Walter S. Montgomery, another son, served for years, from 1902 until his death, as president and treasurer of the Spartan Mills. He succeeded his father in the active management of Spartan Mills. Like his illustrious father, he was very prominently identified with the general associational activities of the cotton manufacturing industry, as well as active in civic affairs.

As a member of the firm of Montgomery & Crawford, wholesale and retail hardware and cotton mill supplies in Spartanburg, he was closely identified with the mercantile business in Spartanburg. He was active in the organization and erection of the Montgomery Building, a sky scraper of Spartanburg, which he served as treasurer. In 1904 he became treasurer and general manager of the Laurens Cotton Mills, Laurens, S. C. He was director of the P. & N. and C. & W. C. Railways, as well as several banking institutions. A grandson, Walter S. Montgomery, Jr., is now serving as active head of Spartan Mills and also of Gaffney Manufacturing Company. V. M. Montgomery, Jr., another grandson, is serving as active head of Gainesville Cotton Mills at Gainesville, Ga. [He has since transferred to treasurer of Whitney Mfg. Co., Whitney, S. C.—The Editor.]

FULLER E. CALLAWAY

Fuller E. Callaway was one of the leading cotton manufacturers of the South, a beloved citizen of LaGrange, and his great ability was often called into counsel at Washington.

If a vote were to be taken among his friends, as to his pre-eminent personal quality, it would probably show a majority stressing Mr. Callaway's fine, human naturalness, which was one of his most endearing attributes, and which was never affected by the success, wealth and fame which crowned his labors.

Fuller Callaway was innately a great humanist. Because he knew human nature and loved people, he could work with them in a spirit of understanding and mutuality.

A notable, and for his friends, a delightful side of Mr. Callaway's personality, was his ability as a teller of good stories. It was one of his methods of expressing his philosophy, for, practical as he was, he was a philosopher as well. He did not indulge in sarcasm. His humor had no sting. It was of the variety that points a moral.

It is this powerful personality that has made him esteemed and loved in his home town and respected by his business associates throughout the United States. A man of rare business judgment, hard-headed and practical, he never lost the human qualities that make one place men above things. For example, an interviewer once put this question to him:

"What do you do at LaGrange?"

"We make American citizens, and run cotton mils to pay the expenses."

Another truism that went far toward furnishing the key-note to his character was the following phrase from his daily prayer: "O, Lord, give me enough trouble to keep me humble." The average man with less faculty for accomplishment than Fuller E. Callaway might with propriety omit the supplication as savoring of superfluity.

Mr. Callaway was a son of the South. He was born in LaGrange, Ga., in July, 1870. Both his father and grandfather were Baptist ministers. As a mere lad Mr. Callaway showed an aptitude for business. When he was only thirteen years old he cleaned

up $36.45 in a cotton-raising venture, and he put every cent of it in the bank. He was still going to school, and it was his requirements for educational purposes that induced him to draw his first check. He wanted to get a copy book. When he went to the window to draw his money, one of the bank officials was at the paying teller's window. He looked at the check. It was drawn for twenty cents.

"Why, my boy," came the protest, "we are not accustomed to draw checks for less than a dollar."

"But I don't want a dollar," replied the boy. "My copy book is only twenty cents. I am afraid if I had eighty cents more I might spend it."

This juvenile thrift impressed the banker. "You may cash a check for twenty cents or one cent, any time you want to," he said.

The merchant traits cropped out early in Mr. Callaway. At the age of eighteen he established a small five and ten cent store in LaGrange on borrowed capital. At that time Woolworth was just blossoming out with his first big venture in New York, and his Georgia compeer used to come to the metropolis to look over the establishment of his exemplar. The little mercantile concern prospered and expanded into the leading department store of the town. It became the foundation of a large wholesale dry goods business with customers over a large adjacent area.

It was in 1900 that Mr. Callaway entered cotton manufacturing. His first venture was in LaGrange, of course. He told the story of his initiation as follows:

"It was like the measles in the South in those days. Every town wanted to build a cotton mill. We got it at LaGrange. We did not have much of anything, but we got up a cotton mill; and auctioned off the directorships. Anybody that would take $5,000 worth of stock, we would make a director; and if a widow with a son had $2,000, we would make the son a bookkeeper. We organized our little mill, and got our home people there to work in it, and we worked it along rather human lines. Everybody was proud of it and carried everything he had in it. A good many of the laborers took stock in it. We had a great many poor white people with the highest type of morality and religion. They could not produce cotton at five cents a pound against the negro; and these men began to move to town as cotton mill operatives. Their position in the country had been so poor, on account of the low price of their product, that it elevated them even to bring them to town to work in a cotton mill, which in itself was a poorly-paid occupation.

"They were mighty good stock, however, pure Anglo-Saxon. They had not much of anything but their independence, but they were mighty careful about that. It was this kind of people we had from the start as operatives in our LaGrange mill. You cannot standardize that kind of people. They are too independent, to individual; and I have felt right along that nothing could be worse for the country than to try to standardize them. If you are going to have good Americans you must have individuals, and our problem is to make them good American citizens as well as good cotton mill operatives."

In 1901, Mr. Callaway was induced to take over the management of the Milstead Manufacturing Co., Conyers, Ga., which had been established several years before that but had not been successful. He made a signal success of this venture, and as a result it became easy to command the capital for other enterprises as rapidly as he was willing to assume the responsibility for them.

It was not long before he began to find himself head of quite a number of flourishing concerns, including banks, warehouses, mercantile establishments and real estate developments. A list of the enterprises which he launched and led to success will give an idea of his energy and widespread activities. They included: Unity Cotton Mills, Elm City Cotton Mills, Unity Spinning Mills, Hillside Cotton Mills, Valley Waste Cotton Mills, all at LaGrange; Milstead Manufacturing Co., Conyers, Ga.; Manchester Cotton Mills, Manchester, Ga.; Callaway Department Stores, the LaGrange National Bank, the LaGrange Savings Bank, Security Warehouse Co., Electric Ginnery, LaGrange Insurance Agency, the Callaway Development Co. and the Manchester Development Co.

From the little mill founded with local capital in 1900, the textile organizations now under the direction of Mr. Callaway's sons who succeeded him, embrace eleven large successful mills doing a business of approximately $25,000,000 a year.

His sons, Cason J. Callaway and Fuller E. Callaway, Jr., succeeded to many of the active managerial duties, formerly filled by their father, and are ably carrying on in the light of his inspiration.

No sketch of Mr. Callaway's career would be complete without a brief reference to his public service. He has filled several state offices of importance in Georgia, and he was a member of the governing board of the Council of National Defense during the World War. He was also chairman of the Commission on European Representation at the World Cotton Conference held in New Orleans in October, 1919. He was vice-president for the United States of the World Cotton Conference, and president (1917-18) of the American Cotton Manufacturers Association.

As in the case of several other broadminded southern cotton manufacturers, Mr. Callaway took a keen interest in the daily life and social working conditions of his mill operatives. He was too democratic and too deeply human, and he also had too much of a sense of humor, to permit this interest to descend to the snobbish level of "welfare work." He liked people and he liked to see them get ahead. He wanted to see men doing their best in the kind of work for which they were best suited. The comfortable and attractive homes of his employees, their schools, gardens, playgrounds and athletic fields and parks were merely instruments for the attainment of this end.

WILLIAM ALLEN ERWIN

For the following facts, covering the life of this active pioneer in the textile industry in North Carolina, we are indebted to his brother, J. Harper Erwin, president of Durham Cotton Manufacturing Company, and to the History of North Carolina, Volume V, North Carolina Biography.

One of the most active and most successful of industrial pioneers to carry on the work of that grand old patriarch of cotton manufacturing in North Carolina, E. M. Holt, was his grand nephew, William Allen Erwin, who was the son of Colonel Joseph J. Erwin, a prominent farmer and plantation owner on Upper Creek, near Morganton in Burke County, North Carolina.

William A. Erwin was born on his father's plantation, known as Bellevue, on July 15, 1856. His mother was Elvira J. Holt, daughter of Dr. William R. Holt, of Lexington, N. C., who was a brother of Edwin Michael Holt.

William Allen Erwin secured his education in the schools of Burke County and in the Finley High School at Lenoir, and then had two years of higher education at the A. & M. College of Kentucky University, but his education was cut short while he was yet a boy.

On December 4, 1874, he became a salesman in the general store of Holt, Gant & Holt at Burlington,

N. C., where he remained until 1877. At that time he took a position as bookkeeper with the North Carolina Railway Company at Burlington. A year later he became engaged in merchandising, and continued as a merchant until 1882.

It was in 1882 that Mr. Erwin first became identified with the business which brought him into the industrial field. From that year until 1893 he served as treasurer and general manager of the E. M. Holt Plaid Mills in Alamance County. His experience, therefore, was obtained at the very source of textile industrial development in North Carolina. He learned his pioneering in the original school of industrial pioneering in the state. What wonder that in later years he achieved such great success in the development of the textile industry of the state!

After 1893 Mr. Erwin made his home at West Durham, N. C., until his death. At West Durham he established, developed and operated one of the largest cotton mill interests in the state of North Carolina.

At the time of his death, under his leadership and control, were five of the outstanding mills of the Erwin Cotton Mills Company, Numbers 1 and 4 at West Durham, with 75,000 spindles, 903 narrow and 1,030 broad looms; Mill No. 2 and Mill No. 5 at Duke [now Erwin, N. C.], with 73,000 spindles and 2,300 looms; Mill No. 3 at Cooleemee, with 48,000 spindles and 1,296 looms. Also under his control and direction were the Durham Cotton Manufacturing Company, East Durham, with 24,000 spindles and 820 looms; the Pearl Cotton Mills, North Durham, with 11,000 spindles and 248 broad looms; Oxford Cotton Mills at Oxford, with 6,200 spindles; and the Locke Cotton Mills Company at Concord, with 35,000 spindles and 976 looms.

These mills under his direction employed a capital of approximately $10,000,000, and in the aggregate formed a very large part of the industrial resources of the state of North Carolina.

On October 23, 1889, Mr. Erwin married Miss Sadie L. Smedes, daughter of Albert Smedes, D.D., founder of St. Mary's Episcopal School at Raleigh, N. C. To them were born four children, three daughters and one son: Bessie Smedes, Margaret Locke, Sarah Lyell and William Allen Erwin, Jr.

It is probably an outstanding fact in the annals of the development of industry in North Carolina that so many of the descendants of that first pioneer, E. M. Holt, have gone so actively into the textile industry, and have made such marked successes.

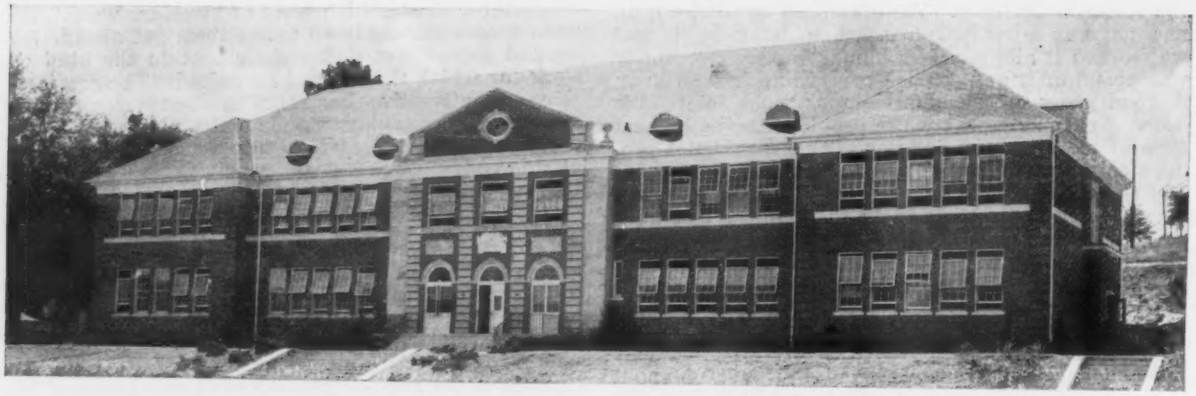
William Allen Erwin was most successful in practically applying the lessons which he had learned at the feet of his great uncle, E. M. Holt, who established the old Alamance Mill, which in turn led to the establishment of many prominent manufacturing plants in North Carolina.

The spirit and inspiration of E. M. Holt was enormous. Its practical application and actual operation in the hands of William Allen Erwin was even greater. E. M. Holt blazed the trail. William A. Erwin made it immensely wider and smoother. Both were pioneers of the first water.

William A. Erwin was succeeded as president of Durham Cotton Manufacturing Company by his brother, J. Harper Erwin, who is also a follower of E. M. Holt, and an apt disciple.

(To Be Continued)

The New Lafayette Lanier School Building at Langdale, Ala.



THE above illustration shows the new school building recently completed at Langdale, Ala., by the West Point Manufacturing Company, for the school children of the village of the company's Langdale Mill. It replaces a previous structure which burned last January, and was opened in time for the current school term.

When the old building burned, and plans were made for a new building, the people of Langdale drew up a voluntary petition to the directors of the West Point Manufacturing Company in which they asked that the new school building be known as the LaFayette Lanier Schools in memory of the late LaFayette Lanier, II, who, until his death several years ago, was agent of the company, and who was intensely interested in the increase of educational advantages. The request was gladly fulfilled.

The new building at Langdale is modern in every respect. Each room is supplied with an automatically controlled supply of clean, filtered and conditioned air which is changed every seven minutes. Other outstanding features are steel lockers in every room, a science laboratory with the latest equipment, facilities for manual training and home economics, art and music appreciation courses. One wing is devoted to a splendid library which is accessible to both pupils and the people of Langdale in general. Ample space has been provided for playgrounds.

R. Kennon Perry, of Atlanta, was the architect; Batson-Cook Company, of West Point, Ga., the builders; and M. W. Wise Company, Atlanta, were engineers in charge of heating and air conditioning installation.

The school building occupies a prominent position on an eminence facing the main highway, immediately opposite the beautiful memorial seat, pool and fountain, which was erected in memory of Mr. Lanier by the citizens of the towns of the Chattahoochee Valley. This memorial was shown on page 52 of the October issue of COTTON.

RECOMMENDED

BY THE G.T.M. FOR

CARDS, FRAMES, SLUBBERS, SPOOLERS, LOOMS, SLASHERS AND BREAKERS

Here is why the textile industry recognizes Goodyear THOR Belt (Seamless) as outstanding on these high-speed, high-flex drives. (1) It has no center seam to open under flexing strains. (2) Heavy duck carcass holds fasteners and withstands shock loads. (3) Tenacious rubber skim coat bonds plies, preventing separation. (4) Sturdy envelope encloses plies, protecting edges from fraying. Every THOR is individually fitted to your drive by the G.T.M.—Goodyear Technical Man. To consult this belting expert, write Goodyear, Akron, Ohio, or Los Angeles, California — or the nearest Goodyear Mechanical Rubber Goods Distributor.

BELTS
MOLDED GOODS
HOSE
PACKING

MADE BY THE MAKERS OF GOODYEAR TIRES

THE GREATEST NAME IN RUBBER

GOODYEAR

CURRENT TEXTILE TOPICS ....

Talk of the Month

GOVERNMENT and private reports of business point the way of progress in the textile industry for the current and coming months. Statistics of the industry, which necessarily are late in publication, mark the start of a healthy broadening in mill activity at large. The recent situation has been one of relief as manufacturers and selling agents have been able to give their minds to some semblance of normal business, not forgetting that political issues are still the overhanging Damoclesian sword.

Volume and quality trends the new note of business

Within the month the former president of the National Retail Dry Goods Association, P. A. O'Connell of Boston, in a message issued by the N.R.D.G.A., stated that proof that business is pushing forward with a resultant beneficial effect on consumer purchasing power is seen in the sharply increased demand in recent months for better quality merchandise. He pointed out four ways in which a continued and increased demand for such merchandise would "keep recovery moving forward".

Consumers get more for their money; wage earners benefit, for only skilled labor which commands fair wages is used in such production; the store which handles it gains; the American living standards are raised. These in brief are the four points. And Mr. O'Connell, speaking for his own district, is reported as predicting not only normal but unusual volume of retail business before the end of this year. Since other sections have been leading New England, this may be considered widely significant.

Of similar tenor, the United States Department of Commerce reports recently indicated an "accentuated" forward trade movement. "Evidences of mounting trade in both retail and wholesale lines came from substantially all reporting cities". The movement was stimulated by "broadened industrial activities, the flow of funds from crop sales, sustained operations of large proportions in building and construction and the stepping up of federal and state projects."

Coming to the cotton industry, the New York Cotton Exchange finds from statistics that the domestic spinning industry has undergone a fundamental improvement. This is borne out in figures of the Census Bureau on cotton consumption, with September showing a definite tendency toward normal. In fact from June to September, inclusive, the monthly consumption each month has increased in spite of the summer curtailment and all but August were above the corresponding periods of last year.

September, with 449,126 bales, compares with 385,000 for June this year. For six years, 1928-1934, the highest September consumption (1929) was 520,000 and the lowest (1934) 295,000 bales. The latter total was the result of the strike, otherwise the lowest was 379,000 in 1930. With the best backlog for many moons, including some sales of gray goods bespeaking production into January, continued progress toward normal is indicated. October easily may run close to the best since 1929, which was 520,310 bales last year.

Helping the situation, the New York Cotton Exchange points out that "the index number for the average price of cotton, including processing tax, was only 81.9 in September this year—taking the average price in 1926 to 1929 as 100—as against 95.3 in September last year, while the index number for prices of all commodities in September this year was approximately 84 as compared with 80 a year ago. There is thus a logical basis for a substantial increase in domestic cotton mill operations over those of last year."

Broadened demand has led to some talk of better merchandising methods and the industry has shown a sounder condition, especially in the matter of prices. Buyers have been inclined, in certain cases at least, to keep manufacturers bearing the load. For example, they tried to get options on goods to be produced. But manufacturers saw themselves covering in cotton on a rising market and facing accumulations which the buyers might take or leave at their pleasure.

Among the notable results of continued control in production, something which should redound indefinitely to the benefit of mills, is the adjustment of production whereby purchasers must look ahead or get caught short of requirements. The fall has shown, for example, the elimination to great extent of potential surplus production in sheets and pillow-cases, by reason of adjustments under the continued code. An acute shortage has developed and buyers have been prompted to cover ahead into next year in consequence.

Barring new disturbances, the course of business suggests that the cotton industry may reach a profitable basis before the year is out. There has been a cautious spirit toward advances, lest a healthy movement be checked, but gradual strength has developed. The sentiment of executives seems to be distinctly averse to new plans for any NRA code and further regimentation under government auspices. The cotton industry saw the need of control long before the NRA and has learned its value under the emergency control.

It still faces conditions which entail enough political phases without further complications of partnership in production control. The control of imports and the reestablishment of export business are matters in which government is necessarily involved. The big gathering of interests connected with all phases of the industry on Oct. 16 indicated how importantly is held the question of export trade, to round out a healthy situation now developing in the domestic end.

MIXED conditions of operation have obtained in the New England branch of the cotton industry. The business of the mills has been increasing and

COMPARATIVE TESTS PROVE

ARMSTRONG'S *Extra Cushion* SEAMLESS CORK COTS

spin more uniform yarn . . . reduce end breakage

RESULT OF TESTS WITH ORDINARY COVERS

•

BLOCK TYPE COTS

•

EXTRA CUSHION COTS

•

Conditions of Test	End Breakage Test*			Yarn Sizing				Remarks
	Ordinary Covers	Block Type Cot	Extra Cushion Cot		Ordinary Covers	Block Type Cot	Extra Cushion Cot	
22's Warp Yarn 1 1/16 Cotton Long draft—Double boss rolls End breakage 5 hrs. 272 spindles each Sizing 2 each from 10 bobbins	46.87	31.65	25.76	Bk Bk-Via Number No.-Via Corrected Bk	95.4 22% 22.52 10% 97.65	95.9 17.7% 22.30 7.3% 97.20	98.9 7% 22.70 5% 102.04	New cot improves end breakage 19% over block type cot—45% over ordinary covers. This test was made on old equipment, and double boss rolls.
30's Warp Yarn 1" Cotton Regular Spinning End breakage 5 hrs. 224 spindles each Sizing 2 each from 10 bobbins	49.10	58.03	37.50	Bk Bk-Via Number No.-Via Corrected Bk	53.70 38.9% 30.12 9.8% 49.03	53.07 35.4% 30.71 11.3% 55.25	56.55 26.5% 30.90 10.3% 58.25	Steel rolls badly worn on these frames. Notice improvement in strength and yarn quality. New cot reduced end breakage 35% against block type cot and 23% over ordinary covers.
42's Filling 1" Cotton Regular Spinning End breakage 120 hrs. 132 spindles each Sizing 2 each from 10 bobbins		38.6	31.34	Bk Number Corrected Bk		33.1 42.37 33.38	33.5 42.65 34.02	This test interesting because of length of end breakage test. It extended over 4 months' time—3 tests of a week each. Shows 20% reduction in end breakage with new cot.
90's Combed Peeler Yarn 1 7/8" Cotton Regular Spinning Washburn Middle Rolls End breakage 10 hrs. 136 spindles each Sizing 2 each from 10 bobbins		66.47	51.77	Bk Bk-Via Number No.-Via Corrected Bk		18.1 11.5 88.59 2.9 17.8	18.8 10.6 88.74 2.7 13.5	Even with worn rings on this frame the new cork cot made marked improvement in running of the work and reduced end breakage 22%.

A GLANCE at the tests above will quickly show you how Armstrong's Extra Cushion Seamless Cork Cots offer the maximum in operating efficiency by reducing end breakage and improving yarn quality. These tests were conducted under the normal spinning conditions found in these four mills. No attempt was made to conduct "ideal" tests. Some of the tests were run under severe operating conditions on old equipment. In all cases, however, the circumstances were comparable for all three types of roll covering and it is reasonable to believe that in any mill, the advantages of this new cot will be apparent.

In addition to better running work, this cot offers other important advantages. For instance, the problems caused by cold Monday morning start-ups are greatly reduced. Mills making frequent changes of numbers have found that this new cot handles more easily. Other mills with worn or damaged equipment and steel rolls out of true have discovered that the new extra cushion cot takes better care of these irregularities. And several mills have reported that the new cot is less affected by hard ends and top roll laps—that it is tougher, yet seems to have more "comeback."

Armstrong's Extra Cushion Seamless Cork Cots can save you money in many ways, including an extra saving of ten per cent on assembly costs because they have glue already applied at the factory. Write for samples and complete information.

Armstrong Cork Products Company

Textile Division - 923 Arch Street

BOSTON, MASS. **LANCASTER, PA.** **GREENVILLE, S. C.**

many units have stepped up operations. The long strike at the Naumkeag plants, however, has kept one prominent plant in idleness and the status of the great Amoskeag Manufacturing Company has remained uncertain, or had up to late in October.

New England Mill Situation

September reflected a very satisfactory business in Fall River and an advancing rate in mill operations there. Combed lawns, sateens and marquisettes were among the goods showing a pick-up. The tendency was broader in October, though buyers were eager for deliveries sooner than those offered in some cases. The early fall prices were close to costs, but here again the tendency was favorable and something like a sellers' market was developing.

Taxes have been a serious matter to mills in that once flourishing cotton mill community and several mills were seeking relief. At last accounts one of these, the Berkshire Fine Spinning Associates, had secured an abatement and in accordance with agreement, was gradually increasing operations as market conditions warranted. The company is reported as agreeing to employ 4,000 workers for three years, against 2,000 recently on the payroll.

Four other Fall River plants—Algonquin Printing Company, Charlton Mills, Luther Manufacturing Company and Border City Mills—subsequently received abatements. Others, including the Pepperell Manufacturing Company, Firestone Mills, and Sagamore Mills, had requests in for similar action. In the requests was generally stressed the necessity of keeping taxes down if the mills were to continue to provide employment to workers in the city.

New Bedford, the historic center of fine goods manufacture, is giving signs of recovery. The keen market for sheetings is reflected in a recent announcement that the Wamsutta Mills would be operated at double-shift capacity for the remainder of the year. Moreover, new equipment has been installed and approximately 100 workers added to the force. It was also said about the same time that the Powdrell-Dartmouth Manufacturing Company was adding 1,000 workers, bringing its force to about 2,800, with double-shift operations in sight for many weeks.

Fall River, as indicated, is as a community doing something toward the succor of its cotton industry and the efforts of civic interests in New England are slowly bearing fruit. It will be recalled that a mill in Rhode Island not long ago was granted relief from undue local tax burden through court order.

Recent advices on the Amoskeag Manufacturing Company include reports of conferences between officials of the mill and a citizens' committee. The committee was told by F. C. Dumaine, Amoskeag treasurer, that there was nothing that could be done until it was known what the Governor's textile investigating committee was to report on its state-wide survey.

At this writing, it was in the news that the Amoskeag mill had received contracts for something over one million and a quarter yards of goods in the mid-October awards of the procurement division of the United States Treasury Department. At the same time the Manchester plant was still closed, to prevent further losses. Mr. Dumaine stated that "when the trustees are convinced production can be carried on at Manchester profitably and peacefully and that the public favors it with their support, the board will then undoubtedly give the question the serious consideration required."

It becomes increasingly evident that the community interest in the mills will have an important bearing on the future of the cotton industry. Arthur E. Moreau, former mayor of Manchester and chairman of the citizens' committee, asked Mr. Dumaine to amplify his statement regarding "public support" and the latter replied: "You probably all know that a large majority of our stock and bond holders live outside the city of Manchester. They are repeatedly asking me if the people of Manchester want the mills to continue operations. I have not been able to answer them."

In this connection, the New England Council is vitally concerned with efforts to safeguard the industry of the district. A textile machinery man, John F. Tinsley, vice-president and general manager of the Crompton & Knowles Loom Works, is chairman of a community development committee of the council. Under his supervision industrial expansion committees are planned for every New England industrial community to carry out an educational and development program, in cooperation with the council.

Apart from local matters, the chief concern this fall has been the disposition of the processing taxes. As stated in the conclusion of an editorial by the Boston *Herald*, "if the Supreme Court validates the cotton textile processing taxes, New England will have to face one of the most alarming crises in its history. The closed Amoskeag mills and the ruins of pulled-down factories throughout New England will have plenty of company. If the tax is declared unconstitutional, there will still be a chance for New England cotton textiles—and so the judgment of the United States Supreme Court will largely determine our future."

After ten weeks, the strike at the Naumkeag plant in Salem appeared to be destined for indefinite continuance, with an estimated payroll loss to that time of $400,000. The management had recently made a nine-point offer, including arbitration under a State board of the wage basis. The union rejected the wage point and thereby threw out the whole offer, which was made as a unit.

COMMENT ON THE COTTON MARKET

New Orleans, October 18, 1935.

THE TREND of the cotton market was upward during the past month in the face of the increasing movement to market and hedging. Sustaining features were light ginnings, no appreciable change in the American crop outlook, a broadening demand for spots in the South, a good inquiry for goods in the North, better trade reports, increasing exports from the United States, and uneasiness as regards possible future developments in the Italo-Ethiopian war, also prospects for a larger world consumption of American cotton this season.

The carry-over of East Indian cotton in the world this year was reported as 2,882,000 bales versus 3,985,000 last year, and the total world's carry-over of all foreign cotton this year was reported as 4,863,000 against 6,049,000 last year. Nevertheless, it appears as though, judging from present indications, that this season's supply of American and foreign cotton will likely be about the same as they

SACO-LOWELL RECIRCULATING AIR FILTER

Pickers also, do better work on conditioned air

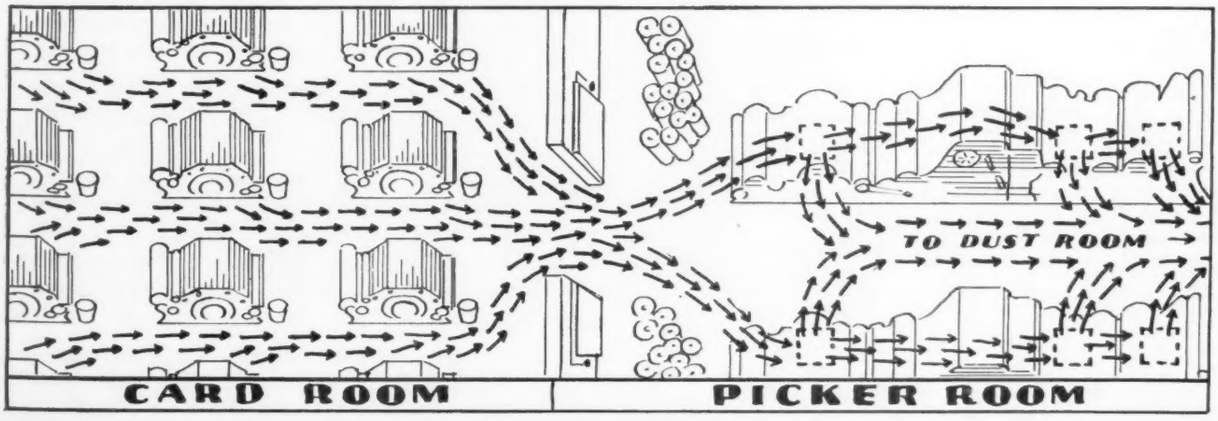
At the right are shown 17 of the 24 S-L Filters serving 8 3-beater pickers at Pacific Mills' Cocheco Division.

Until recently no one attempted humidification of the Picker room because of the great volume of air constantly being drawn into and exhausted from the room. ' ' Recirculating Air Filters make it possible to use the same air over and over again, so that now air conditioning is just as practical for the Picker room as for the Card room or Spinning room. ' ' With the Automatic Control Feeding System and the Cleaning and Blending Reserve operating under controlled atmospheric conditions, Picker laps have reached a perfection never previously attained. ' ' While making possible these improved laps, recirculation puts a stop to that blast of conditioned air from the Card room every time the Picker room door is opened. ' ' Good cleaning requires a fair regain in the cotton. Picker rooms equipped with Air Filters are humidified to supply this regain. ' ' In many instances savings in heating costs alone soon pay for the Filters. ' ' Send for Recirculating Air Filter bulletin.

SACO-LOWELL SHOPS

BOSTON • CHARLOTTE • GREENVILLE • ATLANTA

Pickers exhausting to a dust room steal heat and humidity from other rooms



were last season, as noted by the following comparatives of the New York Cotton Exchange service:

Bales—	This season	Last season
American, counting round as half bales.....	20,395,000	20,277,000
Foreign, in bales of 478 lbs. net wt.....	18,847,000	19,085,000
World's prospective supply	39,242,000	39,362,000

These features and the smallness of world visible and mill stocks of raw cotton, coupled with a better demand, especially of American, which has been of a ravenous nature of late, has made for a more hopeful feeling marketwise, particularly since it will be some time before the new Indian crop will move in volume to market.

Compared with last season the American crop points to, as of October 1, 11,464,000 bales of 500 pounds gross weight versus 9,636,000, and a preliminary estimate of the foreign crop, in bales of 478 pounds net weight, is 13,984,000, against 13,036,000.

Meanwhile there is the possibility of some important court developments. Recently the United States Supreme Court was quoted as having accepted jurisdiction on appeal from lower court decisions, and decided to review the AAA and the Bankhead Cotton Act. When the decisions are rendered at some future date they are likely to have much influence on the market. In the meantime, trade conditions, political developments, weather conditions, etc., will have to be reckoned with.

BRITISH BOARD OF TRADE REPORT FOR SEPTEMBER

Year—	1935	1934	1933
Exports of yarn, pounds....	10,000,000	10,000,000	12,000,000
Exports of cloth, yards.....	150,000,000	178,000,000	163,000,000

CENSUS REPORT

United States— Bales—	This season	Last season
Consumption of lint, September	449,126	294,696
Of linters	61,127	53,913
Including linters	510,253	348,609
Consumption of lint, 2 months	857,536	713,637
Of linters, 2 months	118,993	115,026
Including linters, 2 months	976,529	826,663
Mill stocks, Aug. 31st	644,926	1,076,982
Mill stocks, Sept. 30th	716,807	1,057,900
Stocks in public storage and warehouses, Sept. 30th	7,148,651	7,617,064
Stocks in mills, public storage and warehouses Sept. 30th	7,865,458	8,674,964
Stocks in mills, public storage and warehouses, Aug. 31st	6,537,762	6,900,921
Active spindles during September	22,683,818	22,111,932
Active spindles during August	22,046,652	24,181,776
Consumption of lint in Cotton Growing States, September	378,402	241,414
In New England States	57,554	32,812
In All Other States	13,170	20,470
In the United States	449,126	294,696
Consumption of lint in Cotton Growing States, 2 months	721,337	575,391
In New England States	110,059	105,554
In All Other States	26,140	32,692
In the United States	857,536	713,637

AMERICAN COTTON

Aug. 1 to Oct. 18th— Bales—	This season	Last season
Came into sight (marketed)	4,669,000	3,732,000
Exports from the U. S., incld. Canada.....	1,064,000	1,125,000
Spinners takings, world	2,198,000	2,263,000
Stock at all U. S. ports today (Oct. 18).....	2,386,000	3,053,000

WORLD'S VISIBLE SUPPLY OF COTTON, OCT. 18

Bales—	This year	Last year
American	5,975,000	7,077,000
Other kinds	1,249,000	1,961,000
All kinds	7,224,000	9,038,000

Progress of the American Crop

Substance of Washington's summary for week ended October 15: "Temperatures were above normal in the cotton belt and rainfall in material amounts was confined largely in the northwestern portion. Picking and ginning made good progress in most sections."

Although this year's crop promises to be about 1,828,000 bales larger than last year's 9,636,000 bales, ginnings to October 1 this year were only 4,230,367 bales versus 4,962,384 to corresponding date last year. This was probably due largely to the crop being very late in the northern portion of the belt, especially in Texas and Oklahoma, and because of heavy rainfall in the Southwest in September. In 1932 the September rainfall in Texas was also very heavy, and while 12,710,000 bales were ginned that year, only 4,835,000 bales were ginned to October 1st of that year. There promises to be much low grade cotton in this year's crop, which is reflected in a strong and high basis, in the now urgent demand, and an outlook for large exports.

While last year's foreign crop was 13,036,000 bales, the world's consumption of foreign cotton jumped from 11,897,000 bales season before last to 14,222,000 last season. Thus far this season, judging from the present urgent demand for American, an increase in consumption of American, perhaps of good proportions, may be expected, perhaps at the expense, at least to some extent, of foreign growths.

Several influences appear to be contributing to the present much better demand for the American product, viz: a decidedly better inquiry from abroad, improving trade conditions, the present scarcity of Indian cotton, the lateness of the American crop, much of which will probably be low in grade, and the fear of possible higher prices in event of other European nations become involved in the Italo-Ethiopian war.

As to next year's government cotton program, until now it was understood that plans were being considered for limiting the 1936 crop to a much smaller crop than this year's. Today great interest was centered in the report that the triple A plans to offer the cotton grower next year a four year contract. Regarding this new move on the part of Washington authorities, officials are reported to have said privately they would prefer a crop not greatly different in size from this year's, the last official estimate of which was 11,464,000 bales. Accordingly the trade appears to be much confused at present as to what the farm administration's next cotton adjustment program will be.

What the Southern Mills Are Doing

The Pepperell Manufacturing Co., Lindale, Ga., has placed an order for new spinning frames totalling approximately 32,000 spindles, Saco-Lowell long draft, to replace existing equipment. This provides a full equipment of long draft spinning for the No. 1 plant of the mills at Lindale. The No. 3 plant was completely equipped with 50,000 spindles of long draft some time ago.

Installation of a number of new cards at the Greenwood Cotton Mills and Matthews Cotton Mills, Greenwood, S. C., and the Ninety-Six Cotton Mills, Ninety-Six, S. C., has been completed.

Work has begun on the construction of a four-story warehouse at the Proximity Manufacturing Co., Greensboro, N. C., which will have approximately 54,000 square feet of floor space to be used for the storage of finished goods.

Burlington Mills Co. have acquired the No. 2 plant of Stehli Silks Corp., at High Point, N. C., and will immediately install 250 looms and start the plant in operation.

T. & W. Hosiery Mill, Villa Rica, Ga., has been started, with 20 machines on ladies' seamless hosiery. J. H. Tomlin and James Wilson are the proprietors.

The Lillian Knitting Mills Company, Albemarle, N. C. will install five additional new full-fashioned hosiery machines in an addition now being erected.

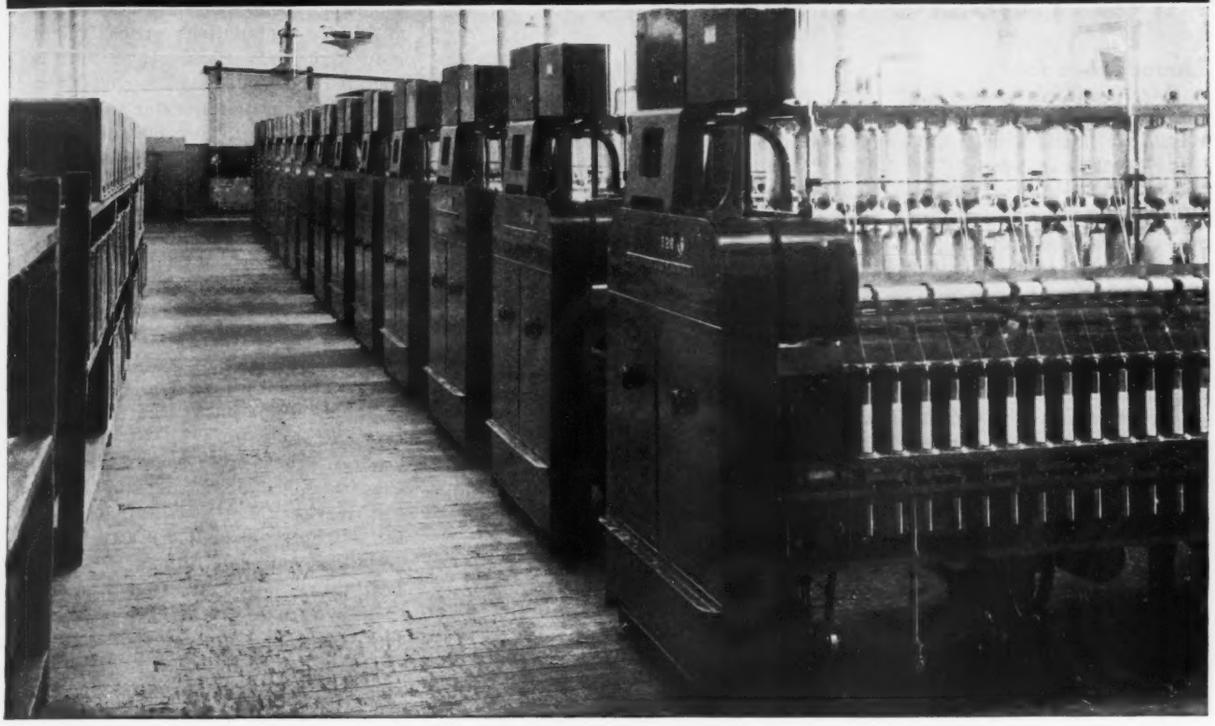
Larkwood Silk Hosiery Mills, Charlotte, N. C., have completed an extensive expansion program which includes the installation of 10 new full-fashioned machines.

A two-story addition is being erected at the Concord Knitting Mill, Concord, N. C., which will be used to double the plant's capacity.

An addition to the Vance Knitting Mills, Kernersville, N. C., is being erected. C. M. Guest & Sons, Anderson, S. C., are the contractors.

New machinery has been installed in the old hosiery plant at Mount Gilead, N. C., and the Dixie Hosiery Mill will soon begin full-time operations there.

How's THIS for Performance?



25% Increase in Production . . . .
20% Increase in Breaking Strength

A well known southern cotton mill recently installed a large number of our Model B spinning frames, equipped with H & B Four-Roller Long Draft (part of the installation pictured herewith).

Mill tests of this equipment were reported to us, giving the following data and results:—

30's yarn, warp twist, 7/8" cotton • Variable speed spinning • Spindle speed:—minimum, 10,073 r.p.m.; maximum, 11,573 r.p.m. • Traveler speed:—minimum, 4558 f.p.m.; maximum, 5254 f.p.m. • increase in production—approximately 25% • Increase in breaking strength—approximately 20% • Ends down per 1,000 spindle hours—32 •

Perhaps H & B Four-Roller Long Draft will give comparable results for you. Why not investigate?

H & B AMERICAN MACHINE COMPANY
Cotton Preparatory and Spinning Machinery
PAWTUCKET, R. I.

BOSTON OFFICE, 161 Devonshire St.;
ATLANTA OFFICE:
815 Citizens & Southern National Bank Bldg.;
CHARLOTTE OFFICE:
1201-3 Johnston Bldg.

H & B FOUR ROLLER LONG DRAFT SYSTEM

New Textile Equipment and Publications . . .

Texrope Drives for Machine Tools

Allis-Chalmers Mfg. Co., Milwaukee, Wis., have issued a new 32-page Bulletin No. 1259 on Texrope Drives for Machine Tools. It shows 60 typical applications of the v-belt drive to modern machine tools of all kinds. It points out that Texrope drives are fully standardized, that a large number of ratios between 1 to 1 and 7 to 1 can be ordered from stock. Stock service is available in all popular motor ratings from ½-hp. to 100-hp. Special drives are built to specification from 1 to 2,000-hp. Almost any speed ratio may be had for a given motor speed. This publication is doubly interesting because at the same time it shows many of the latest machine tools on the market.

New Automatically Self-Cleaning Atomizer

American Moistening Company, Providence, R. I., have announced the development of the Amco No. 4 atomizer, which, it is explained, is automatically self-cleaning, and delivers its rated capacity of smokelike spray with a minimum of wear and maintenance. The nozzle design, smooth finish and centralization of air and water orifices are arranged to produce a spray of exceptional fineness, intimately mixed with the room air and projected a long distance, it is pointed out. The self-cleaning feature is designed to provide quality and quantity of spray even under adverse conditions. When the compressed air supply is shut off, whether manually or in response to a humidity control, both air and water nozzzles are thoroughly cleaned. On starting, atomization does not begin until sufficient air pressure is present to produce a good spray, and, on stopping, atomization ceases before the air pressure has fallen to a point at which good spray is impossible, so that drip or feathering down are eliminated.

Self-cleaning atomizer

The nozzles are surrounded by a smooth, concave, hemispherical surface to protect them from injury and prevent accumulation of lint and fly, which is swept away by rapid streamlined currents of induced air. The working parts are made to close limits of metals that are durable to erosion, mechanical wear and corrosion; all are enclosed in a rugged bronze body of simple design which is easy to clean. The joints are metal to metal, accurately machined to provide tightness without the use of gaskets. The new atomizer conforms to standard practice in capacity, air pressure requirements and air consumption; connections to air and water pipes are standard, so the atomizer may be used for replacement as well as on new work.

New Unit Heaters

The Fedders Manufacturing Co., Buffalo, N. Y., have added seven sizes to their line of Series 3 unit heaters, making 20 standard models in the line, with sizes and capacities up to 1,300 e.d.r. Data on the complete line are given in the company's Data Book No. 537.

Booklets on Gaskets, Etc.

Goetze Gasket & Packing Co., Inc., New Brunswick, N. J., have issued Catalog No. 48 on metallic and semi-metallic gaskets, sheet and stuffing box packings, sealing compounds, gasket cutting tools, valve discs, filter screens and metal stampings. This 64-page booklet describes many new gasket types.

Packaging Portfolio

"Xmas Merchandising Ideas" is the title of a special Christmas portfolio produced by The Hinde & Dauch Paper Co., Sandusky, Ohio, which effectively illustrates a group of merchandising suggestions—each one made of corrugated fiber board. It is designed especially to interest manufacturers of products selling through retail stores.

Gear Motors

Diehl Manufacturing Co., Elizabethport, N. J., have issued a descriptive pamphlet covering Diehl gear motors which includes helical gear and worm gear units, either direct connected or coupled types, in single, double and triple reductions for horizontal, vertical and right angle drive.

Push-Button Master Switches

General Electric Company, Schenectady, N. Y., have announced a new line of water-tight push-button master switches, mounted in molded phenolic-compound enclosures and intended for naval-type installations or equivalent industrial applications. Each unit is operated by a molded-compound lever, thus protecting the operator from electrical contact with any metallic parts that might be "alive", and as many as four units may be mounted in one enclosure. The units provide both normally open and closed circuits. Either momentary-contact units or a combination of momentary-contact and latched-in units are available.

Conveyor Catalogs

The Standard Conveyor Co., North St. Paul, Minn., has issued three new catalogs: Conveyors by Standard, a general catalog of 40 pages; Standard Pneumatic Tube Systems; and Standard Gravity Roller Conveyors, containing 56 pages of detailed drawings, descriptions and illustrations of rollers, bearings, supports and frames.

New Controller

A new No. 40 controller has been developed for automatic control applications, by the C. J. Tagliabue Mfg. Co., Park & Nostrand Aves., Brooklyn, N. Y. In it, a novel spring lever designed to eliminate lost motion multiplies the movement of the powerful capsular spring for sensitive, positive control. Indicating and non-indicating types in nine convenient temperature ranges and three pressure ranges are available.

Air Operated Controller Catalog

The Brown Instrument Company, Philadelphia, Pa., has published a new catalog on Brown air operated controllers for the control of temperature, pressure, flow and liquid level. The catalog illustrates the construction and adjustment obtainable in the controller. "Tuning in" the throttling range, automatic reset and the interchangeability of control units are fully explained.

Building Maintenance

The Stonhard Company, 401 North Broad St., Philadelphia, Pa., specialists in the field of industrial maintenance and construction materials, have issued a guide to successful methods of keeping floors, roofs, walls and foundations in good repair. It is a profusely-illustrated 24-page booklet. Among the subjects covered are: Lengthening the life of concrete and wood floors; leveling rough spots and worn places in all

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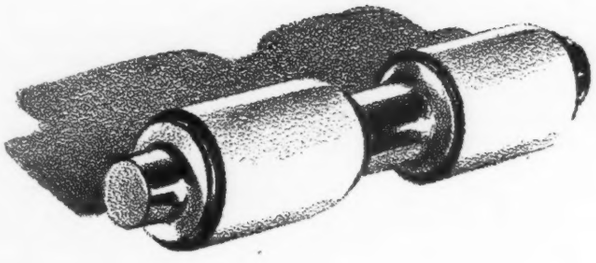

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types of floors and trucking aisles; roof waterproofing methods; and waterproofing masonry against hydrostatic pressure. The book is entitled "Over the Rough Spots".

Self-Aligning Roller Bearing Units

Link-Belt Company, 910 South Michigan Ave., Chicago, Ill., have developed a new line of bearing units, known as Link-Belt Shafer self-aligning roller bearing "Series 400", with stocks available in popular standard sizes. Shafer self-aligning double-row roller bearings

Self-aligning roller bearing

are used in Link-Belt mountings. These units are available for pillow blocks, flange bearings, hangers and take-ups. It is pointed out they possess inherent self-alignment, ability to carry radial loads, thrust loads, and radial and thrust loads combined.

Self-alignment of the roller bearings is provided by concave rollers between convex outer races and a spherical inner race on the sleeve, which is free to deflect with a shaft temporarily misaligned or out of line because of inaccuracies of installation. Labyrinth seals protect the bearings. Bores are ground for direct shaft application.

Elastic Hose Patents

In view of the widespread use of elastic courses in hosiery, U. S. Patent No. 1,996,648 recently issued to Robert H. Lawson and Roy J. Lovell and assigned to Hemphill Company of Pawtucket, R. I., makers of Banner hosiery machines, is seen as one of far reaching importance to the hosiery trade.

The invention relates to knitted fabrics and particularly to stocking or half-hose having incorporated therein a so-called garter top. The manner of incorporating the elastic thread in the knitted fabric is such that the elastic yarn, when initially fed to the needles, is knitted in for one or more needles. This eliminates the loose ends which are unavoidable in the "laid-in" elastic constructions and to which both merchants and consumers object when buying stockings.

A number of different methods of knitting the patented fabrics are shown in the patent papers but the inventors state that the preferred method is to feed the elastic thread below the latches of raised cylinder needles and below the level of the dial needles which are in retracted position. Thereafter the dial needles are projected and the cylinder needles are moved to stitch drawing position in the usual manner. The patent as issued, covers the knitting of both plain and rib fabrics.

The patent papers also describe a method of knitting a garter as an integral part of the sock in such a way that the garter portion of the stocking assumes an angle with respect to the remainder of the stocking which is ordinarily assumed by the garter in common use. This may be achieved either by knitting a pull course below the elastic courses and across a certain number but not all of the wales or the rib top, or by cutting across the desired number of wales.

Hemphill Company state that licenses have been taken out under the patent both in this country by hosiery manufacturers and in Germany by a machine manufacturer under a corresponding German patent.

Booklet on Bearing Manufacture

"Bearings in the Making," a photographic review of the major steps in the manufacture of ball-bearings, has just been published by the Fafnir Bearing Company, New Britain, Conn. More than a dozen illustrations, most of them full page size, show the more important manufacturing and inspection operations.

The steps illustrated in the brochure include forging and machining of rings, cold forming of balls, hardening, facing, grinding, matching and inspection. The accompanying captions provide a step-by-step review of the manufacturing and testing procedure necessary for precision bearings.

TIMELY NEWS ITEMS WITH A TEXTILE SLANT . . . .

Willcox & Gibbs Acquires Metropolitan

Willcox & Gibbs Sewing Machine Co., 658 Broadway, New York City, recently acquired the stock and assets of the Metropolitan Sewing Machine Corp., Nyack, N. Y., valued at approximately $1,000,000. Lucius N. Littauer, president and principal stockholder in the Metropolitan, company sold his interest to Willcox & Gibbs. He established it 35 years ago. W. A. Viall, president of Willcox & Gibbs, and vice-president of Brown & Sharpe, which have manufactured the company's machines at Providence, R. I., since 1859, succeeds Mr. Littauer as head of the Metropolitan.

F. R. Towle

Frank R. Towle, treasurer and general manager of Willcox & Gibbs, was elected vice-president and general manager of the Metropolitan company, which will be operated as a separate entity under its own name, in its present location at Nyack, N. Y. Mr. Towle has been identified with Willcox & Gibbs for 32 years. J. P. Weis, who has been identified with the Metropolitan firm for 33 years, has joined the staff of Willcox & Gibbs. Paul Stern was re-elected treasurer of Metropolitan, and David C. Cocks, assistant treasurer of Willcox & Gibbs, was elected secretary.

The purchase was made to diversify the Willcox & Gibbs line of sewing machines, it was explained by Mr. Towle. For several years the Metropolitan machines have been sold by Willcox & Gibbs men in the West. The branches of the two companies are now being consolidated, and the Nyack firm's personnel retained as far as possible.

New Statistical Service on Rayon

Announcement is made by Stanley B. Hunt of the organization of a new statistical and economic service bureau to serve the rayon industry. The new organization is called the Textile Economics Bureau, Inc., and quarters are located at 21 East Fortieth Street.

The purpose of this new organization is to render a statistical and economic service to the rayon producing and fabricating industry and to the public. Another important feautre of the service is the publication of a new monthly periodical to be called the *Rayon Organon*. The editorial policy of the new publication will emphasize reliable information and facts on the rayon and general textile industry. The *Tex-*

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tile Organon, formerly published as a house organ by the Tubize Chatillon Corporation under the editorship of Mr. Hunt, has been discontinued.

It will be recalled that the *Textile Organon* was started by Tubize Chatillon in 1930 as a house organ to present a reliable appraisal of the rayon and textile industry each month. The success of this Tubize editorial formula was such that the *Textile Organon* gradually outgrew its object as a single company's house organ and became an industry, economic and statistical medium. The statistical work done through the *Organon*, especially since 1933, likewise was of industry and trade value and significance.

The *Organon*-statistical service expanded to a point where it was no longer advisable for any single company to sponsor it. Thus, when the Tubize Company decided to discontinue this service, the Textile Economics Bureau, Inc., was organized by Mr. Hunt to take over the entire library, records, goodwill, etc., of the *Organon*-statistical service in order to continue this work. The Textile Economics Bureau, Inc., is managed by Mr. Hunt and the *Rayon Organon* is edited by him in this new service arrangement.

Sales Representatives

Griscom-Russell Company have announced the appointment of Farrell & Jones, 10 High Street, Boston, Mass., as their representative in the Boston territory. They will handle the company's line of evaporators, generator air coolers, fuel oil heaters and heat transfer equipment.

Sulphonators Meet

The members of the Sulphonated Oil Manufacturers Association met for their first field day on September 20 at the Manufacturers' Country Club near Philadelphia. The morning was taken up with a business session, attended by 45 member representatives. The designation of staples was unanimously changed over to the basis of active ingredients. A consolidation of "official" methods of analysis of sulfonated oils was approved by the members and will be printed and available for distribution shortly. A standard form of contract was approved in principle, the details to be settled at the next meeting. Unfair trade practices were discussed. A modest program of publicity was approved.

The operating committee chairmen of the association are as follows: Costing, A. J. Royce; laboratory, Ralph Wechsler; marketing, H. B. Hooper; publicity and advertising, Clyde D. Marlatt; unfair trade practices, M. A. H. Braham; quality and standards, Victory H. Berman; traffic, L. L. Grombacher; and social, Fred C. Scholler.

During the afternoon, the golfing members and guests, comprising ten foursomes, competed for fourteen prizes. The meeting, with a total attendance of 65, closed with dinner and a special entertainment.

Officers of Combed Spinners Association Re-elected

All officers of the Southern Combed Yarn Spinners Association were re-elected at the annual meeting held in Gastonia, N. C., on October 2. These are: W. H. Suttenfield, Statesville, president; Arthur M. Dixon, Gastonia, first vice-president; R. B. Suggs, Belmont, second vice-president. Directors for three years: C. A. Cannon, Kannapolis; J. A. Groves, Albemarle, N. C.; Arthur E. Davis, Salisbury; George W. Stowe, Belmont. The hold-over directors are, one year, A. M. Dixon, Gastonia; Carl Rudisill, Cherryville; S. P. Stowe, Belmont; W. L. Balthis, Lowell; two years, A. G. Myers, Gastonia; John H. Rutledge, China Grove; C. D. Welch, Cramerton; and T. L. Wilson, Gastonia. The planning committee has been W. H. Suttenfield, A. M. Dixon, A. K. Winget, and Fred L. Smyre. These were re-elected and A. G. Myers was added to the committee. Fred M. Allen of Gastonia is secretary-treasurer, and Mrs. Mildred G. Barnwell is executive assistant.

Joe Zens Now with Quaker City Chemical Co.

The Quaker City Chemical Company, Philadelphia, Pa., and Knoxville, Tenn., have announced that Joe H. Zens of Milwaukee is now representing them in the Chicago and Milwaukee districts. Mr. Zens, a former president of the National Association of Hosiery Manufacturers, is widely known throughout the textile industry, in which he has had a wide experience. He will continue to reside in Milwaukee.

Radio Talk by Berman

"The Chemist's Part in the Textile Industry", was the subject of a 15-minute radio talk over Station WAAT, Jersey City, on October 5 by Victor H. Berman, president of the Onyx Oil & Chemical Co., Jersey City, N. J., under the auspices of the Jersey City Kiwanis Club. Mr. Berman's speech was delivered for the arm-chair listener, written in a non-technical way. He traced the history of textiles from the Stone Age to modern civilization. Threaded through the talk was the progress of the chemist in the fields of bleaching, dyeing, printing and finishing. He took the listener through the various steps from raw product to finished goods, and paid respect to the parts Scheele, Berthollet and Tenant played in the art of bleaching; Perkins in dyestuffs; Mercer in mercerizing; and Chardonnet in rayons.

Hutton is Vice-President of Hemphill Company

The appointment of Alfred L. Hutton, Jr., as vice-president in charge of production and sales has been announced by Robert H. Lawson, president of Hemphill Company, Pawtucket, R. I., makers of Banner hosiery machines. Mr. Hutton has been with the Hemphill Company 20 years, serving most recently as assistant manager and prior to that as assistant director of engineering. He is widely known throughout the hosiery manufacturing trade through attendance at the past ten Knitting Arts Exhibitions, and through his special engineering work in various hosiery mills.

PUBLISHER'S STATEMENT

of the ownership, management, circulation, etc., required by the act of Congress of March, 3 1933, of COTTON, published monthly at Dalton, Ga., for October 1st, 1935.

State of Georgia, County of Fulton.

Before me, a Notary Public in and for the State and County aforesaid, personally appeared W. J. Rooke who, having been duly sworn according to law, deposes and says that he is the Business Manager of COTTON, and that the following is to the best of his knowledge and belief, a true statement for the date shown in the above caption, required by the Act of August 24, 1912, embodied in Section 411 Postal Laws and Regulations, printed on the reverse side of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor, and business manager are: Publisher, W. R. C. Smith Publishing Co., Atlanta, Ga.; Editor, R. W. Philip, Atlanta, Ga.; Business Manager, W. J. Rooke, Atlanta, Ga.

2. That the owners are: W. R. C. Smith Publishing Co., Atlanta, Ga.; W. R. C. Smith, Atlanta, Ga.; W. S. Cushion, Cleveland, Ohio; O. A. Sharpless, Atlanta, Ga.; J. C. Martin, Atlanta, Ga.; H. H. Kelley, Willoughby, Ohio; W. J. Rooke, Atlanta, Ga.; T. W. McAllister, Atlanta, Ga.; E. W. O'Brien, Atlanta, Ga.

3. That the known bondholders, mortgagees and other security holders, owning or holding 1 per cent or more of total amount of bonds, mortgages, or any other security holders are: None.

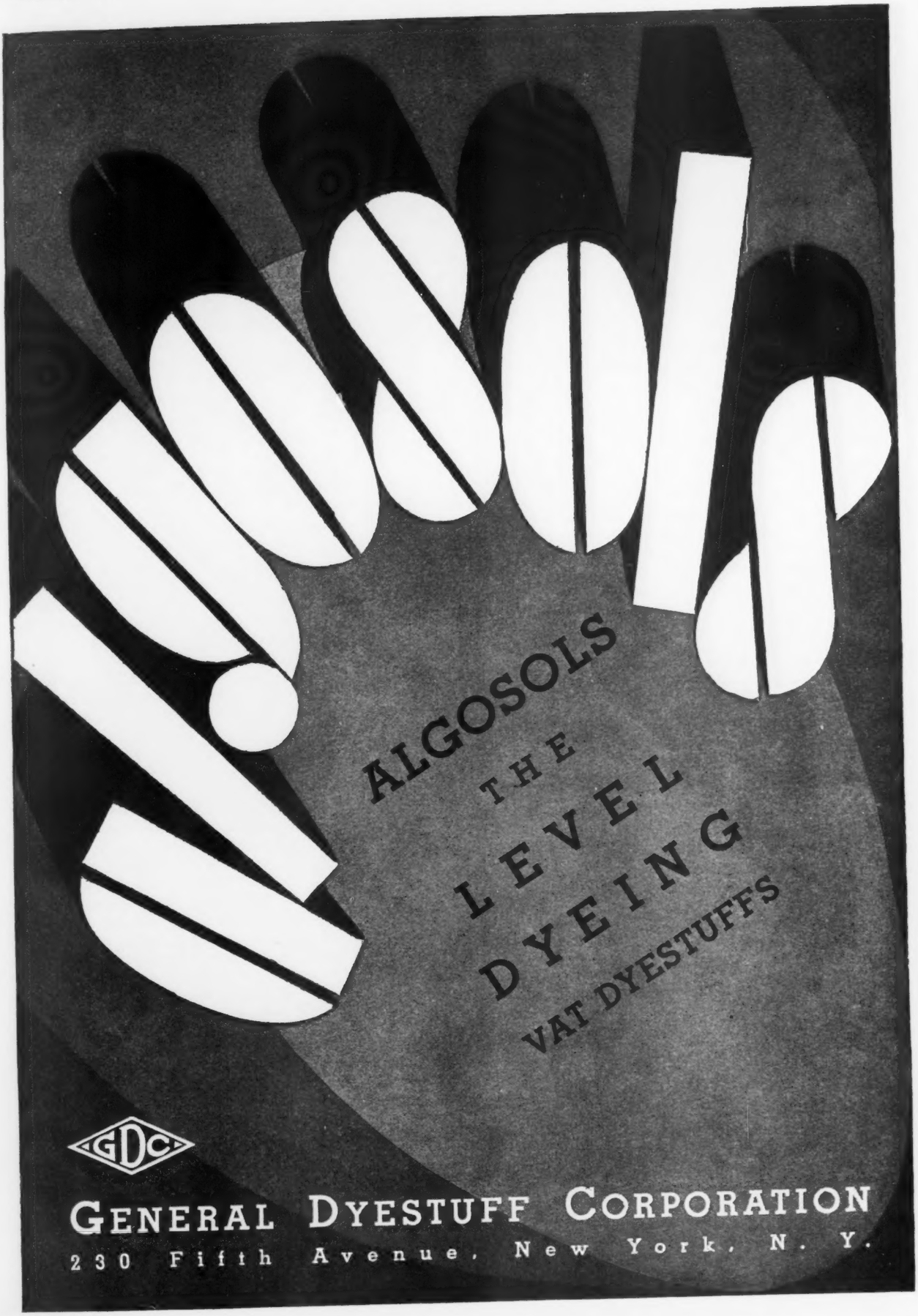
4. That the two paragraphs next above giving the names of the owners, stockholders and security holders if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholders or security holders appear upon the books of the company as trustees or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stock holders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bonafide owner and this affiant has no reason to believe that any other person, association or corporation has any interest direct or indirect in the said stock, bonds or other securities than as so stated by him.

W. J. Rooke, Bus. Mgr.

Sworn to and subscribed before me this 1st day of October, 1935.

E. L. PHILPOT, Notary Public.

My commission expires, March 7, 1939.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September Rayon Shipments Establish New High Record

Shipments of rayon yarn from the plants of the American producers during September established a new high record for all time, exceeding the previous high record month of January 1935 by a substantial margin, according to the October issue of the *Rayon Organon*, published by the Textile Economics Bureau, Inc., recently organized to undertake research work for the rayon industry.

September was the third consecutive month, states the *Organon*, during which shipments exceeded mill production, resulting in a reduction in surplus stocks to the equivalent of 5½ weeks' supply, based upon the current rate of consumption. The shipments index for September was 583 against 550 for August and a 1934 monthly average of 353.

Because of the high rate of activity maintained in the general textile industry since the beginning of the year, the paper states "it should be emphasized that too much of an increase in this industry is not to be expected on through the Fall in view of the high level already obtaining."

Wool consumption also continues at a high rate. "Breaking all records since 1923", the paper continues, "the August rate of apparel-class wool consumption was 6,648,000 pounds per week, clean basis, compared with 5,894,000 pounds per week in July, an increase of 13 per cent." For the first eight months of 1935 wool consumption, of this class, was 81 per cent greater than the corresponding 1934 period.

With respect to the advance in silk to $1.99 per pound in September, the highest price since mid-year 1933, the *Organon* states it is clear that if the recent upward tendency persists "either silk will become a luxury item of restricted use with rayon taking its place in many lines, or the price of silk will have to decline eventually in order to hold its present markets." The paper gives some interesting data showing the extent to which silk deliveries were inflated in recent months because of the heavy re-exports to Canada in anticipation of the increase in the Canadian tariff on silk.

Analyzing the figures of the Bureau of Census on cotton supply and distribution for the past three seasons, the *Rayon Organon* says:

"The relation between these official data and the Government's efforts at cotton control may be summarized as follows: (A) There has been some decline in domestic consumption. (B) The reduction in the cotton crop has been more than offset by the reduction in cotton exports. (C) The entire reduction in carry-over cotton stocks has been made in those stocks held by consuming establishments, the stocks held in public storage and at compresses (largely owned by the Government) showing no change at a high figure.

"This three-year phenomenon of reduced exports off-setting the Government's crop reduction program on the one hand, and the passing of cotton stocks from private hands to the Government on the other hand, can lead to an interesting speculation on the future course of cotton in its economic, as well as its political aspects."

Cotton Roads

Cotton, in the form of a fabric reenforcing membrane between dirt road base and bituminous top surface, will play an important part in the nationwide $50,000,000 farm-to-market road improvement program now under way if current efforts of the Cotton-Textile Institute are successful.

State and county highway commissions, road engineers and WPA and other interested government officials throughout the country are being given the records of experiments conducted with the Institute's cooperation in several states during the last 9 years. Special emphasis is being placed on the facts that within the last week Mississippi joined the list of states—including Texas, Georgia, South Carolina and New Jersey—which have built cotton roads and that, of particular importance to airport officials, army engineers have been authorized to adapt the cotton road principle in construction of airport runways at Riley Field, Fort McClellan, Ala.

Addressed primarily to highway officials concerned with rural or secondary road improvements to be financed partially by federal funds, a booklet issued by the New Uses Section of the Institute on "Cotton 'Farm-to-Market' Roads" reviews the development of cotton roads, describes construction technique which is illustrated by photographs of actual building operations, quotes official reports of state supervising engineers or other experts who have observed the performance of cotton roads in service; and summarizes the advantages of a cotton fabric membrane as follows:

"1. Provides a superior integral 'road mat'.

"2. Prevents permature raveling, erosion, cracks and other failures of the top-surface.

"3. Prevents the road-base substance from forcing its way through the bituminous-surface.

"4. Insures greater riding comfort.

"5. Involves no departure from standard construction methods.

"6. The cotton fabric used is not a patented article and is readily available in quantities from any of the hundreds of cotton mills regularly producing coarse cotton goods.

"7. The initial cost of the fabric is more than offset by the economies in maintenance charges."

Reminding taxpayers as well as highway officials who will plan and supervise federally financed road projects that "it's the upkeep that counts", the booklet continues:

"If ever there was truth in the statement, 'it's not the initial cost but the upkeep that counts', it is when applied to the new 'farm-to-market' road building programs, now made possible by the availability of Federal funds.

"The initial cost of building these greatly needed roads will be borne largely by the Federal government. Once built, the cost of maintaining those roads will fall solely on the benefitted communities.

"The heavy responsibility for building to minimize maintenance costs rests on the state, county or other local highway officials who must draw specifications for the projects within their jurisdictions."

From the standpoint of the cotton textile industry and the cotton farmer, it is pointed out by C. K. Everett, manager of the Institute's new uses section, that more than 2,000,000 miles of unimproved rural roads in the United States are eligible for inclusion in the $50,000,000 farm-to-market road program. On the basis of 6 to 8 bales of cotton in the form of fabric required for each mile of road built, the use of a cotton membrane on even a reasonable proportion of the total mileage would absorb hundreds of thousands of bales of cotton annually and provide continuing employment for thousands of textile workers.

Campe Passes

Colonel Emanuel N. Campe, president of the Campe Corporation, New York, and identified with the merchandising of underwear for more than 40 years, died October 10 at the age of 62 years after a nillness of 10 days. He entered the business while a youth as a partner in the old firm of Hecht & Campe before the turn of the century. About 1910 the firm became known under its present name when his brothers joined him in the business of factoring and selling underwear lines. In 1928 the merger of the Century Beverly Corporation and the Ballard Knitting Co., with the Campe Corporation, was effected, providing the new concern with thirty million garments a year.

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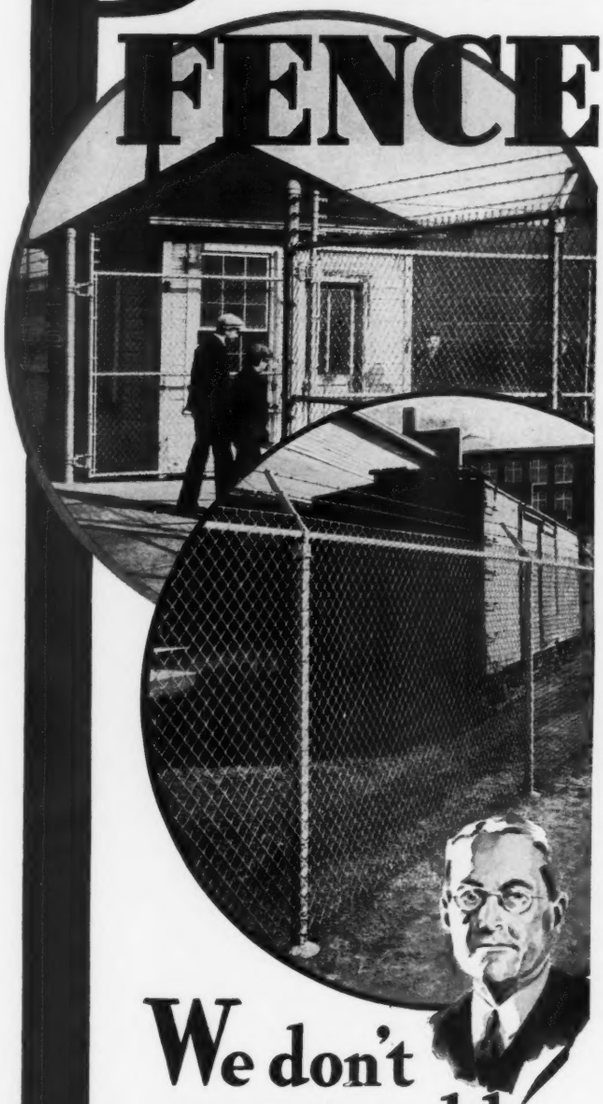

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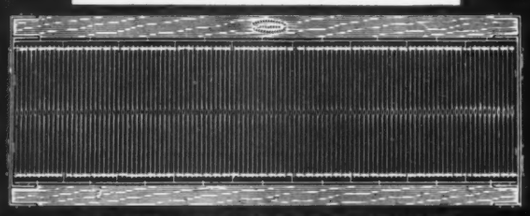

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PERSONAL NOTES
about Men You Know

EARLE R. STALL, who has represented Woodward, Baldwin & Company in the South for the past few years, has been elected president of the F. W. Poe Manufacturing Co., Greenville, S. C., succeeding NELSON C. POE, JR., who remains on the board of directors. Previous to his association with Woodward, Baldwin, Mr. Stall was manager of the textile engineering department of J. E. Sirrine Company, Greenville, and served as the industry member of the Textile Work Assignments Board which functioned under the recommendations of the National Textile Labor Relations Board during the early part of this year.

ALLEN F. JOHNSON recently resigned as vice-president and general manager of the Consolidated Textile Corporation, with headquarters at Lynchburg, Va., to become president of the American Spinning Company, Greenville, S. C., and the Florence Mills, Forest City, N. C., succeeding the late D. D. Little. Mr. Johnson is a past president of the American Cotton Manufacturers Association.

ISAAC L. LANGLEY has succeeded Mr. Johnson as general manager of the Consolidated Textile Corporation, which has plants at Lynchburg, Va., Henderson, Ky., Burlington, N. C., Shelby, N. C., Pelham, Ga., and LaFayette, Ga. Mr. Langley was graduated in textile manufacturing at N. C. State College Textile School, Raleigh, in 1923. He joined the Consolidated Textile in the operating office in June 1923. Since 1928 he has been assistant to Mr. Johnson.

JOE S. GAMMON has resigned as assistant overseer of spinning at the Lanett Mill Division, West Point Mfg. Co., Lanett, Ala., to become overseer of spinning at the Catherine plant of Avondale Mills, Sylacauga, Ala.

FULLER E. CALLAWAY, JR., treasurer of Callaway Mills, LaGrange, Ga., has become president also, succeeding his brother, CASON J. CALLAWAY, who becomes chairman of the board of directors, devoting his attention to the merchandising of the mill's products. ARTHUR B. EDGE, JR, has been made secretary of the company, succeeding HENRY G. SMITH, who becomes executive vice-president assisting CASON J. CALLAWAY in the sales. The selling subsidiary, Callaway Mills, Inc., has been dissolved, and the sales will be directed from the LaGrange general offices. S. Y. AUSTIN, formerly vice-president of the selling agency, is now special vice-president of the parent company. CHARLES GEER and PERRIN N. COLLIER, staff manager, have been made assistant vice-presidents.

WALTER DILLARD, JR., who went to New Braunfels Textile Mills, New Braunfels, Texas, some months ago as superintendent, has been made general manager succeeding R. S. Porter. H. C. McKenna has been made superintendent.

LEE HILLER has resigned as superintendent of the dye plant of Lowell Bleachery South, Plant No. 2, Griffin, Ga.

HOWARD R. HART, general superintendent of the three plants of the Aiken Mills, at Langley, Bath and Clearwater, S. C., has been transferred to the New York office of United Merchants and Manufacturers, Inc., to serve in the capacity of contact man between the selling house and the mills of the company.

JOHN W. TRIGG, formerly assistant superintendent of the Meritas Mills, Columbus, Ga., has become superintendent of the Oconee Textiles, Inc., Westminster, S. C.

AMOS NANNEY is now night overseer of spinning at the Henrietta Mills, Henrietta, N. C. Mr. Nanney's name was incorrectly spelled in an item on page 128 of the October issue of COTTON.

W. W. HARRIS, formerly assistant overseer of spinning at the Entwistle Mfg. Co., Mill No. 1, Rockingham, N. C., has returned to Clemson College to complete his textile course.

G. F. MARTIN has been appointed superintendent of the Profile Cotton Mills, Jacksonville, Ala., succeeding R. A. HAMMETT, who has returned as overseer of No. 2 carding. H. A. HOLBROOK is overseer of finishing.

WILLIAM TOLL was elected president of the Sipp-Eastwood Corporation, Paterson, N. C., at a recent meeting of the board of directors. C. P. FURMAN was made secretary and treasurer, and C. L. WRIGHT assistant general manager.

W. T. COKER, JR., has accepted a position in the textile division of the Armstrong Cork Products Company at Lancaster, Pa., He is now located in Charlotte, and will cover a large part of North Carolina. He has been connected in practical mill work in the spinning room of the Granby plant of the Pacific Mills, Columbia, S. C. He is a native of Timmonsville, S. C.

D. R. LAFAR has been promoted from superintendent to vice-president and general manager of the Ranlo Manufacturing Co., Ranlo, N. C., and E. B. DENNY, whom he succeeds, is president succeeding W. T. LOVE, who becomes chairman of the board. J. N. SHEBER, who has been assistant secretary and treasurer, becomes secretary and treasurer succeeding S. A. ROBINSON, resigned. W. T. LOVE is now president as well as treasurer of the Spencer Mountain Mills, succeeding J. L. LINEBERGER. Mr. Sherer is also assistant secretary and treasurer of the Spencer Mountain Mills.

T. LEROY SMITH has become representative of the Clinton Company, Clinton, Iowa, starch manufacturers, in North Carolina, with headquarters in Charlotte. Mr. Smith has been representing the Staley Corporation in this territory for eight years. C. L. GILBERT, formerly superintendent of the Darlington (S. C.) Mfg. Co., has become connected with the Clinton Company with headquarters at Spartanburg, S. C.

Obituary

JOHN H. MCKINNON, who served for 15 years as superintendent of the Pickett Cotton Mills, High Point, N. C., passed away in October, at 42 years of age, following an illness of several months.

E. H. JOHNSTON, for many years manager of the Highland Park Mfg. Co., Rock Hill, S. C., died in October, after an extended period of declining health which had prevented active service for some time. He was 78 years of age.

DR. W. C. HAMRICK, head of the Hamrick group of mills at Gaffney, S. C., died at his home in Gaffney on October 21, after an extended illness. He was 57 years of age. Dr. Hamrick was one of the outstanding figures in southern textiles, and was one of the first southern business men to recognize the possibilities of the industry in its infancy. He had served several terms as a member of the South Carolina legislature.

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REDUCES *Spooling Costs* . . .

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About 67% of Spooler or Winder operators' time when using a Hand Knotter is taken up in finding ends, operating the Knotter, and controlling slack after tying. *THE AUTOMATIC SPOOLER does this work mechanically, thereby increasing the rate at which bobbins can be handled.*

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With manually operated Spoolers or Winders the tying of good knots and prevention of kinks depends entirely on the care exercised by operators. The yarn must be placed in the Hand Knotter correctly and the slack after tying carefully controlled. *THE AUTOMATIC SPOOLER, having a mechanically operated Knotter and kink preventer, guarantees a uniform high standard of work.*

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Paper Carriers have played an important part in the development of American Textile Manufacturing. And into this part has been indelibly written the story of scientific research and technical service played by SONOCO in keeping pace during thirty-six years of progress in textile manufacturing.

During this time SONOCO has been successful in contributing most of the major improvements made in paper carriers. Since the invention of the first MACHINE to make cones, soon after their modest beginning in 1899, SONOCO has consistently played the 'lead' in the progressive development of products in their field.

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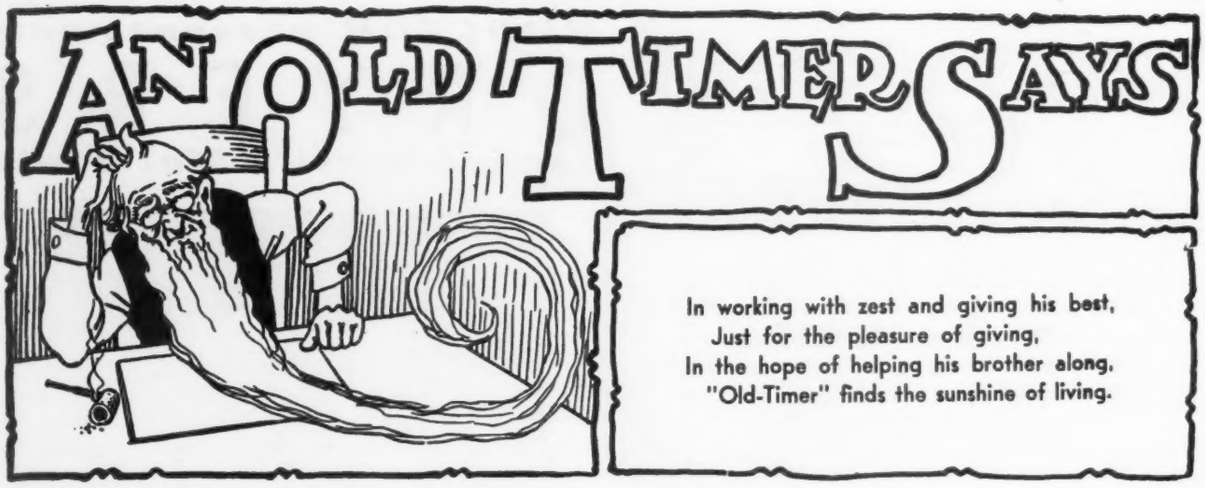
AN OLD TIMER SAYS
In working with zest and giving his best,
Just for the pleasure of giving,
In the hope of helping his brother along,
"Old-Timer" finds the sunshine of living.

Old-Timer Has Been to Town!

MONDAY, September 23, my boss called me to New York because he had had a complaint on some cloth. Arriving in New York, he sent one of his men with me to the factory to look at this cloth and, leaving out the details as to what I found about the complaint, and what was wrong or not, I at least was embarrassed to have to be called to New York to look at what my boss considered was poor work. This was on Tuesday, and after returning to the office, I was very much relieved to find that the boss was not in, and I did not have to face him that afternoon. Therefore, I went on back to my hotel.

About 5:30 P. M., Smith, the man who had gone to look at the cloth with me, called me on the telephone, saying that my boss wished him and myself to be his guests at the Baer-Lewis fight that night. Boy! was I happy!

When I walked into the office Tuesday all of the fellows said "Hey! OLD-TIMER, have you come to see the fight?" "No," I replied, but they of course did not believe me. However, it was true. As a matter of fact even if I had had the money, I felt like that I could have put it to better use than paying out that much money to see a prize fight. I had made up my mind to listen to the fight over the radio, and when Smith called me, you can realize what a big kick it gave me to know that I was going to see one of the big fights, put on in the big way they do things in New York.

Smith and I met in one of the hotels to have dinner, and from there went on to the fight. It was a revelation to me to see the efficient way this vast crowd was handled. Mounted police did more toward handling the crowd than all of the other policemen and guards could possibly do, because when a crowd would congregate, a mounted policeman could push his horse up next to the crowd and, naturally, the people would get out of his way for fear the horse would step on them.

All the gates to the Yankee Stadium were marked with large signs and arrows, pointing the direction to the different sections as indicated on our tickets. For example, our tickets called for Gate No. 5. As soon as we entered Gate No. 5, we then looked for Section 7, as shown on our tickets. This was easily found, and then Row A, Seats 21 and 22. We didn't need the usher to show us to our seats, although the ushers were there, and their uniforms and hats corresponded to the color of the lettering shown on our tickets. For example, the "A" under "row" on our tickets was printed in green, and the number of the seated was printed in green. Our usher wore a green helmet and a green uniform. From all of this description, you can see how much preparation and how much thought somebody must have given to the great problem of handling over 90,000 people.

Our boss also furnished us with field glasses, which enabled us to draw the ring and the fighters up so close, that it seemed like we could reach out and put our hands on them. This also gave us an opportunity to look over the vast mass of people, and see the number of notables that were attending this fight.

Back in the days of John L. Sullivan, it was considered almost a disgrace to go to a prize fight, and a lady who did attend a prize fight—well, it was just not done. But now look, fellows, at the list of notables that we saw at this fight.

All of you know about Chrysler automobiles; well, Mrs. Walter Chrysler was there. You also are familiar with the name Vanderbilt; well, the newly-weds, George and Lucile Vanderbilt were there. Alfred Gwynne Vanderbilt was also there, and the William K. Vanderbilts were at a party given by many notables after the fight, but didn't attend the fight. Most of you who are movie fans know George Raft; well, he was there too, all the way from California; also Jimmie Durante; and such men as Barney Baruch, and other notables whose names you find daily in national politics and national finance. Practically all of you who read magazines and newspapers, know the name of William Randolph Hearst; well, Mrs. Hearst was at the fight, and such other notables as Irene Castle, Gene Tunney and his wife,

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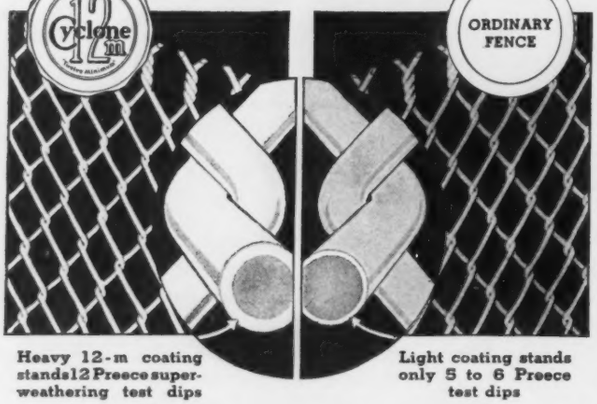

Heavy 12-m coating stands 12 Preece super-weathering test dips

Light coating stands only 5 to 6 Preece test dips

● Whether or not you understand metallurgy, study the greatly enlarged strands of wire shown above.

Cyclone 12-m fence is copper bearing steel wire woven into fence and drawn through a vat of molten zinc. This heavy coating is solid, rust-resisting metal—free from pinholes through which corrosion might attack. As proof, Cyclone fence bearing the 12-m seal is guaranteed to withstand 12 dips in the famous Preece super-weathering test. And this protection costs you no more than you would pay for ordinary fence fabrics which can withstand but 5 to 6 of these dips.

Cyclone fence comes to you direct from a nearby factory branch and bears the Cyclone 12-m seal . . . your guarantee that every foot will meet this extremely high standard.

Every prospective purchaser of fence is invited to mail the coupon for the famous Cyclone book—"Fence—How to Choose it—How to Use It". It tells how to get the *most* for your fence dollar.

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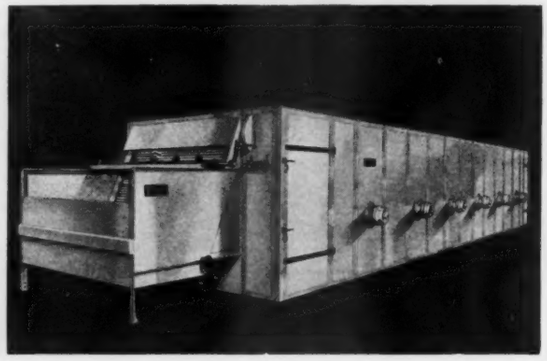
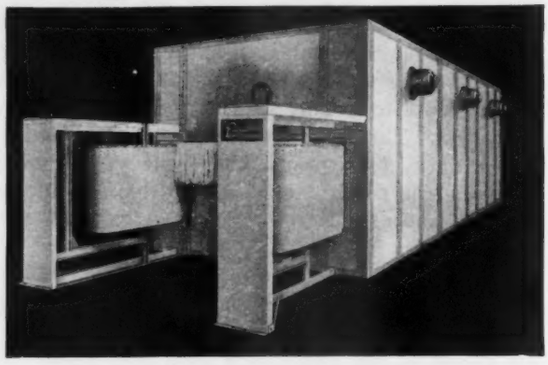
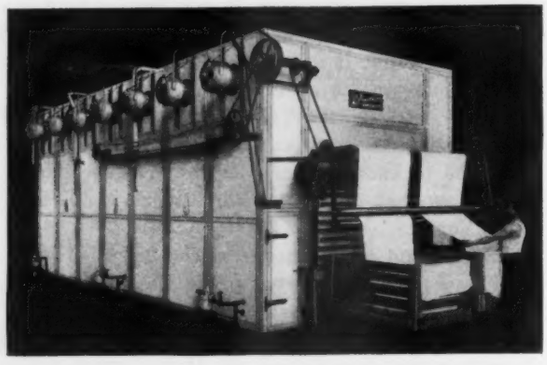


For Raw Stock, the New Proctor Super Dryer gives a new conception of high capacity per square foot of floor space, high quality, low cost and freedom from operating troubles. Send for Bulletin 166.



For Yarns, the New Proctor Automatic Dryer with Traveling Skein Protector insures all skeins dried alike at greatly increased output with amazing savings in space and operating cost. Ask for Bulletin 69.



For Piece Goods, the New Proctor Multipass Airlay Dryer embodies a new principle of non-tension, continuous drying . . . compact and rapid. Insures uniform drying, allows full shrinkage. Ask for Bulletin 68.

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the old fighter, Tim McCoy, and other notables too numerous to mention.

So, by this very elaborate list, covering such a wide field of prominence, the financial world, the political world, the movie world, and also the sports world, you will have to admit that prize fighting has been lifted to a different world from what it was in the days of John L. Sullivan.

There was hardly a spot in the world which was not represented at the ringside of Yankee Stadium. No boxing match, in all its history, attracted such a wide range of interest.

Press correspondents were there from all parts of the globe. They were from Japan, Paris, London, Milan, Italy, South America, Cuba and scores of other countries. In fact there were four correspondents from Japan and, goodness knows, how many were there from such countries as France, British Isles, etc. Of course Canada had correspondents there, too. The most noted writers from each of these countries. Now just stop to think, fellows, how much money this all amounted to. If the gate receipts amounted to a million dollars—then the expense of all these people getting there must have been many millions.

Remember all those OLD-TIMER articles about what a strange thing human nature is? Well, figure that one out—that is how a civilized (?) people would spend probably over five million dollars to see a young negro boy and a white man fight a few minutes.

It seemed to be the vogue for not only the notables, but thousands of other people, to celebrate after the fight by giving gay supper parties. The hotels, restaurants, and night clubs were crowded to capacity. New York certainly didn't look like there had ever been a depression. It looked like "boom times" to me. Money seemed to be flowing like water.

Of course, as for the fight, there is no need to go into any details in regard to a discussion of the main bout, because you have not only already had full descriptions of what a poor showing our "white hope" put up against Louis, but probably you have seen the movie pictures by this time. Sitting there and looking at Baer's futile efforts in this fight, made me feel almost like crying. I did think that with Baer's experience, and the very fact that he had appeared in "big company", so to speak, more than Louis had, that this should give him the advantage. However, when it was time for the main bout to go on, a large number of Baer's personal friends came with him from his dressing room, and although Baer was surrounded by a cordon of police, they marched Baer around the stadium before letting him go to the ring.

During this confusion, Louis got into the ring before I saw him. In fact, when I first saw Louis, he was sitting in his corner and seemed to be so perfectly at ease, with an absolutely blank expression on his face, that it gave me an impression that he might just have walked into a gymnasium to engage in a sparring bout. While Baer was standing up in his corner, taking water into his mouth from a bottle, moving constantly about on his feet like he was tromping out a tune, wiping his face on his gloves, until Jack Dempsey took him by the arm and made him sit down. Jack had no more than turned him loose, when he was up again.

By this time the announcer was through with his spiel, and they were called to the center of the ring for instructions by the referee. As stated above, there is no need to tell you anything about the fight.

This is one experience that OLD-TIMER appreciated very much, because he had never seen over 90,000 people assembled in one body before. The most he had ever seen was at some of the football games, where it was reported there would be 40,000 or 50,000 people.

Our seats were on the first mezzanine floor, and I believe that we really had better seats than some of the so-called ringside seats that were down on the ball ground. The ringside seats must have run back forty rows from the ring, and these seats were on a flat surface, and as one of my friends explained who had one of them, every time an exciting part of the fight occurred, so many people would stand up, that he could not even see the fighters in the ring.

In giving you this brief description, there has just been one thought in my mind, because, as readers of the OLD-TIMER page know, there never has anything like this appeared on this page before. But I have been giving you this background in order to bring out one main thought to my brother overseers and superintendents, and that thought is "Organization".

If you will read again the brief description I have given you on the way this tremendous throng of people was handled, you will begin to comprehend what I mean by referring to it with the word "Organization"; how it applies to our work as an overseer or superintendent. As explained in another article, the most successful overseers and superintendents 20 years ago, were men who were most efficient in their knowledge and operation of machinery. However, the most successful overseers and superintendents of today, are the men who are capable of building up the most efficient "Organization".

The overseer or superintendent who has the rare ability of being able to work people, the man who can obtain the highest efficiency from his operatives, from his section men, from his assistants, and at the same time being able to obtain loyalty and respect, is the man who commands the highest salary.

For example, a few years ago, one of my associates had the opportunity of taking charge of a mill which was on a product entirely different from anything he had ever had any experience with. He came to me for advice as to whether he should accept this position or not. He explained to me that he knew absolutely nothing, from a practical standpoint, about the product this plant was turning out. However, it was a rather large plant, and I explained to him that from the information I had concerning that plant, the executives were looking for a man who had the ability to organize—the ability to get the

(Continued on page 92)

Cleaner, More Even Card Stock Reduced Wear on Card Bearings

Liquid oil is the enemy of perfect carding for it *won't* stay in bearings, but it *will* get on card clothing and stock. Lack of dependable lubrication results in excessive wear which destroys the close and accurate adjustment of Doffer and Top Flats.

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MODERN TEXTILE LUBRICANT

Better lubrication at Less Cost per Month

Your Products Must Excel

Just "Good" is no longer "Good Enough"

Today's market in textile products is highly competitive. Buyers no longer put up with a product that is merely "good"—it *must* be excellent — better-than-the-average, or it doesn't "get to first base."

To beat competition you should perfect the slashing and finishing of your products and that is where NORTH Service can help you. We are glad to have our practical men visit you and go thoroughly into your methods and systems of sizing, make laboratory tests on raw cotton, sized and unsized warp and cloth, determine moisture content, dry size and other conditions. They will then cooperate with you, securing any desired weight or feel of cloth, or whatever the requirements may be to establish your products as leaders in the cloth markets. Why not consult us?

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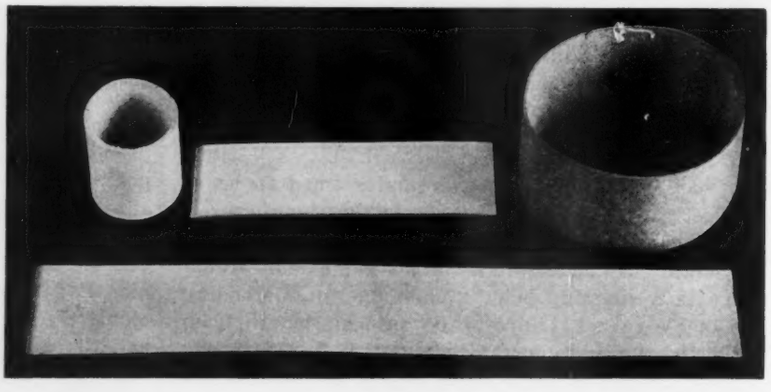

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HOW OTHER MEN MANAGE

Practical Discussions by Cotton's Readers On all Varieties of Mill Subjects

How Can I Prevent Dark and Light Streaks in Mock Yarn?

EDITOR COTTON:

I would like to appeal to the readers of COTTON for some help in finding a solution to a problem that so far has defied solution so far as we are concerned. We are running or trying to run a mock filling; that is, on double creeled spinning frames we run one bobbin of white roving and one bobbin of colored roving. This roving is run as nearly alike as possible in the card room. We do not allow it to vary more than one grain to 12 yards. Both are run on single process picking and drawing. The weights are checked at each process and held within as close limits as possible.

The yarn and cloth made from this filling shows dark and light streaks due to the yarn blending in some instances instead of mocking, or rather blending enough to cause a variation in the color of both the filling and the cloth.

I might also add that the dyed stock is raw stock dyed and each bale is matched for color before running.

The trouble does not show up all at one time, that is, the whole frame will not blend part of the time and mock part of the time; the trouble shows up sometimes in one bobbin while the next bobbin will be doing just right. This causes the cloth to have dark and light streaks in it even when the battery on the loom is filled from the same doff of filling.

Any suggestions that will lead to the discovery of the cause of this condition will be gratefully received.

CONTRIBUTOR NO. 6424

Setting the Clutch Mechanism of the Change Motion on Stafford Looms

THE May 1935 issue of COTTON carried, on page 91, a practical discussion describing the setting of the magazine and sliding bar warp stop motion on Stafford looms, from "CONTRIBUTOR NO. 6356". Subsequently, we received a letter of appreciation for this discussion from another reader who made the following suggestion:

"I would be pleased if "CONTRIBUTOR NO. 6356" would now explain how the parts at the other end of the loom work to put in the clutch that starts the motion for the magazine, and some faults that are regular to the motion. I was watching some Stafford looms the other day; the shuttle dropped in the box under the slay end but no shuttle from the magazine took its place. The loom banged and then stopped."

This suggestion was submitted to "CONTRIBUTOR NO. 6356" and he has sent the following reply:

WE invite our readers to make use of this department for the discussion of any and all problems arising in the mill or finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statement of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

◆ ◆

"I will endeavor to describe the clutch mechanism of the change motion on the Stafford loom. The clutch disc that is keyed to the conveyor shaft carries a clutch finger. This finger straddles the shaft and works on a pin as a hinge. One end of the finger rests in a hole in the clutch disc, the other end rests against the clutch throw-out lever. This throw-out lever is in the shape of a cam on its face and is locked in place by the clutch lock. When the clutch finger is at rest against the throw-out lever, the end of the finger that rests in the hole is pulled out so that it cannot make contact with the moving member of the clutch which runs idle while the change motion is not operating. When the filling motion takes hold to stop the loom and effect a change of shuttles, the rod from the filling motion knock-off lifts the clutch finger lock and lets the clutch finger extend through the hole in the stationary disc and enters one of a series of holes in the moving disc, thereby turning the shaft to effect the change. While the one revolution of the shaft is being made, the clutch throw-out lever drops back in place and when the end of the finger comes around and strikes the cam face, the finger is forced out of contact with the moving disc. The throw-out lever should be set to release the finger of the clutch at the same instant that the starting cam completes the job of starting the loom and the starting lever should drop back to rest in the pocket of the starting cam. Correct timing is very essential to perfect operation.

Preventing Mis-Changes

"Regarding mischanges, there are numerous causes for this. The pan in the receiver box should be set so that the outgoing shuttle cannot pass down into the box until the conveyor lever has moved forward enough to clear the safety catch. If it does let the shuttle by sooner, the catch will fly back up and catch the conveyor and prevent the new shuttle being placed in the loom. The leather lined friction clamp on the conveyor shaft should be kept at the right tension to prevent vibration of the conveyor shaft while changing shuttles. Be sure to keep grease off of the conveyor cam and keep the roller well oiled."

TENSION--by Fay H. Martin

THIS is the fourth and last of the current series by Mr. Martin, covering Draft, Twist, Lay and Tension. The first article, on Draft, appeared on page 79 of the July issue; the second, on Twist, was on page 79 of the August issue; and the third, on Lay, appeared on page 90 of the September issue.

Individually, these articles cover in a clear and understandable manner these important elements of cotton manufacturing. Together, they comprise an invaluable reference for the student and the practical man. The reader is urged to preserve his copies of the four instalments for permanent filing and reference.—The Editor . . . . . .

TENSION on a roving frame is one of the most illusive factors in the whole machine. Just when one thinks he has "got" it, it is not there. It is the cause of more worry on the part of the overseer, second hand and fixer than any other part of the roving frame, i.e. if they are interested in making the best of roving and yarn, for no positive or set rule has been worked out, as yet, that will tell just what change gear to put on the frame to give a perfect tension for a given hank size roving.

The adjusting of the tension on a roving frame is of game of "trial and error" with error following each trial more often than not. Many things enter into the adjusting of a frame for tension other than the mere changing of the tension gear. First, there is the cotton itself and the mix. Then comes the twist, which may be more or less; lay, close or open; adjustment of the cone belt on the cones so as to have the proper tension at the empty bobbin, for if the tension is tight the roving is stretched and if it is slack the frame will need "racking"; bobbins of different diameter on the bare wood; cone belt, whether it is new or old; temperature, whether hot or cold; and humidity, meaning dry air or damp air, is a very disturbing factor and perhaps the most harmful of them all.

After the best of adjustments to the "sight and feel" have been made, there remains much that can be discovered only by the use of an automatic roving tester, such as the contour or outline of the cones, pressure of the presser and speed of the frame, all of which have a bearing on the making of a bobbin of roving with a good even tension from start to finish.

The tension or rack change gear is a change gear that regulates the exact movement of the cone belt carrier as each successive layer of roving is wound upon the bobbin. The size of the gear, i.e. the number of teeth required, depends upon the number of layers required, to fill the bobbin, in relation to the "lay per inch" lengthwise. In this article "lay" means lay per inch lengthwise of the bobbin and "layers" means layers crosswise of the bobbin from the empty out to the full bobbin. An approximate rule for the number of layers in the build of a bobbin is as follows.

Square root of the hank size of the roving multiplied by 33, times the diameter of the full bobbin, minus the diameter of the empty bobbin, divided by 2. This constant 33 will vary with the varied condition of combed or carded cotton, twist and *lay per inch.*

Rule for finding layers, from empty to full bobbin:

$$(\sqrt{\text{hank}} \times 33) \times \frac{\text{(Dia. of full bobbin minus dia. of empty bobbin)}}{2}$$

equals layers from empty bobbin out to a full bobbin.

Example:

Size is 4.00-hank roving
Diameter of empty bobbin is 1½"
Diameter of full bobbin is 3½"

$$\frac{(\sqrt{4} \times 33) \times (3\frac{1}{2}'' - 1\frac{1}{2}'') = 66}{2}$$

Square root of 4 is 2
$33 \times 2 = 66$
$3\frac{1}{2}'' - 1\frac{1}{2}'' = 2''$
2" divided $2 = 1''$
$1 \times 66 = 66$ which is the answer.

(3½" — 1½") is divided by 2 because one half of the layers are on one side of the bobbin and one half are on the other side.

The square root of the hank size is used because you are dealing with diameters and areas.

A strand of roving is considered to be round in form, thus it must have a diameter and an area. The area of a circle is its diameter multiplied by its diameter and this product multiplied by .07854. See Fig. 5A in "Lay" article (page 90, September COTTON). Hence, diameters are to each other as the square root of their areas.

The factor 33 is used because it is the relation of the lay lengthwise of the bobbin to the layers sidewise of the bobbin and this factor varies according to whether it is a close lay or an open one. 33 is for a fairly close lay.

It has been found, as shown above, that 66 layers or changes have been required to build a bobbin 3½" in diameter with 4 hank roving. 66 layers equals to 65 moves of the cone belt; as the belt is already on the diameter for the first layer. This movement is over a cone surface lengthwise of the cone and varies according to the length of the cones. Cones vary in length, by different builders for roving frames as follows: 30", 32", 34", 35" and 37". But this does not matter if the cones have been designed to the true hyperbola curve in relation to the diameter of the bobbins being wound. The longer the cone is the better, for it has a more gentle slope. Cones 30" long for a 3½" diameter bobbin have a steeper grade than a cone 37" long for a 3½" diameter bobbin.

Fig. 6 is a diagram, drawn to scale, showing the relation between a cone 30" long and one 37". The one 37" long has been designed to wind a bobbin 3½" diameter, while the 30" cone was designed to wind a bobbin 4" diameter. In winding a 3½" diam-

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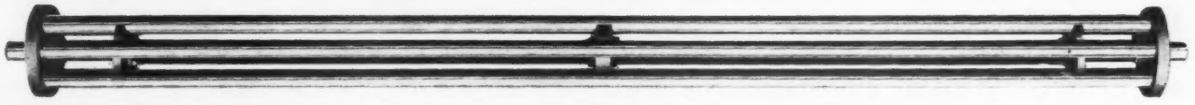

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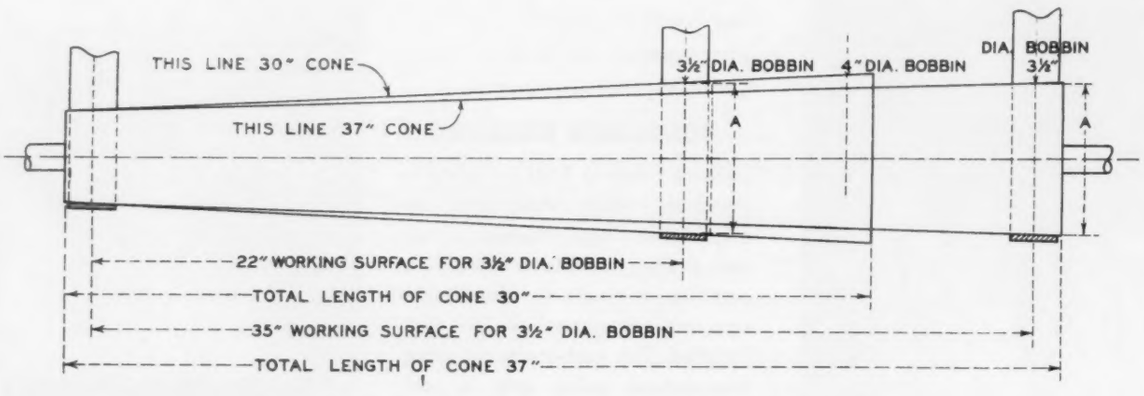

FIG. 6 DIAGRAM SHOWING RELATION BETWEEN A 30" AND 37" CONE

eter bobbin with the 30" cone, only 22" of a working surface is used and this is the same as though the cone was but 24" long. The diameters at *A* and *A* would be the same in both cases. The working surface on the 37" cone would be 35" for a 3½" diameter bobbin. Note the difference in the angles between one and the other. The slope or angle on the 37" cone is flatter. This flatness allows the cone belt to have a better grip on the surface of the cone and reflects a speed truer to the hyperbola curve of the cones.

For our example, we will use a cone 30" long designed for a 4" diameter bobbin. Hence the full length of the cone will not be used for a 3½" diameter bobbin. In winding a 3½" diameter bobbin on this cone only 22 inches are required for the working surface with this type of cone. It was found that 66 layers of 4 hank roving were on a 3½" diameter bobbin, 66 layers equals to 65 moves of the cone belt.

22" working surface divided by 65 equals to .338" per each movement of the rack and cone belt. Now the problem is to make a train of gears that will produce this movement at each change of the traverse or in other words, for each layer and a constant for different hank sizes. See Fig. 7 for tension gearing diagram.

The letters or symbols used are as follows for a 7 x 3½" Woonsocket frame. (This cone, by the way, will wind a 4" diameter bobbin.)

S Contact shaft gear.
t Tension intermediate.*
CH Tension gear change.
U Winding shaft gear.
y Winding shaft pinion.

*This is called an intermediate in the list but is not used as such.

The "set up" for the constant calculation would read thus:

S = 16 — 68 = t
CH = 0 — 80 = u
y = 14 — .862 = Rack

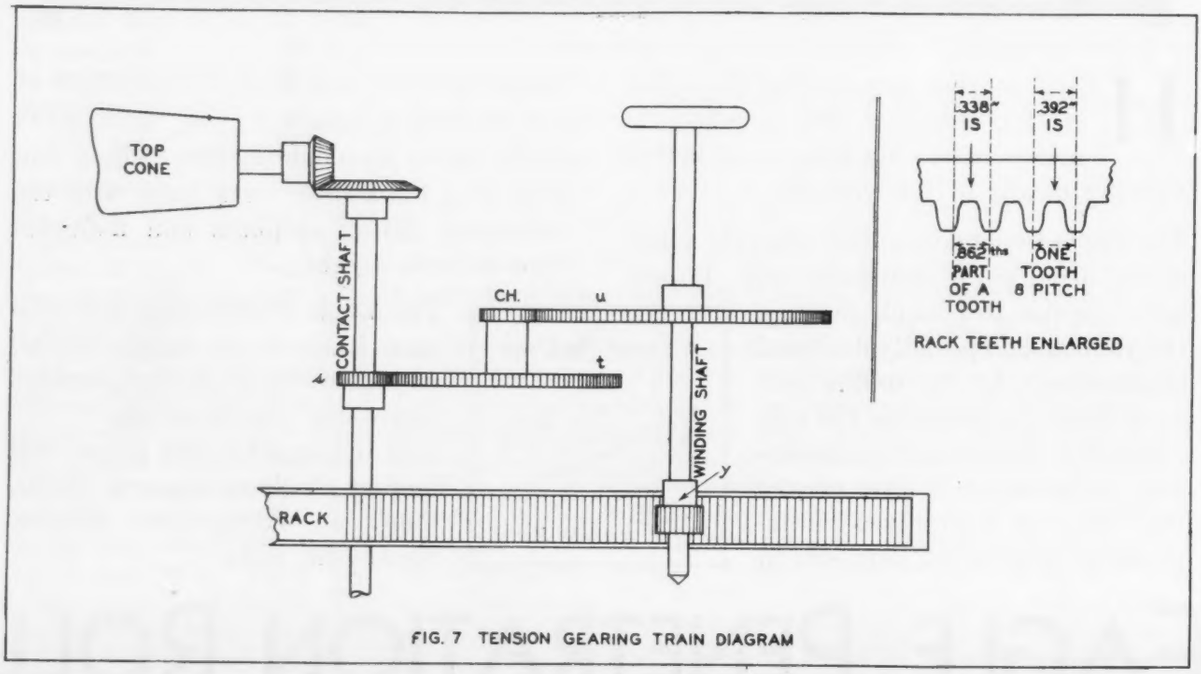

FIG. 7 TENSION GEARING TRAIN DIAGRAM

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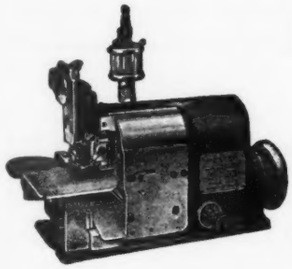

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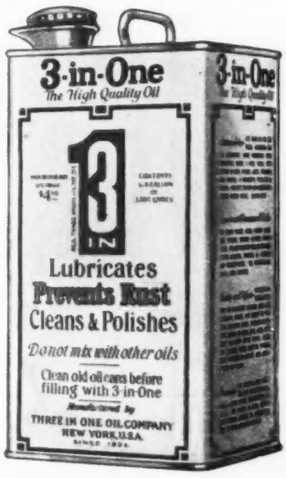

Turned to the left it would read:

$$\frac{68 \times 80 \times .862}{(16)8 \times 0 \times 14} = \text{Constant}$$

The cone rack is 8 pitch or .392″ circular pitch, in other words, it is .392″ from the center of one tooth to the center of the next one. (See Fig. 7.) Movement of rack and belt is .338″ per each change. .338″ divided by .392″ equals to .862 teeth movement of cone rack and of the 14 tooth gear on the winding shaft for each layer put on. Do not confuse *teeth* movement of pinion with *inches* movement of rack. See insert Fig. 7. The contact shaft gear has 16 teeth but since it only revolves one half turn at each change only 8 teeth are used per each change.

So we have:

$$\frac{\cancel{68}^{34} \times \cancel{80} \times .862}{\cancel{8} \times 0 \times \cancel{14}_{7}} = \frac{293.08}{7} = 41.85 \text{ constant}$$

Tension constant divided by the square root of the hank size equals the change gear.

$$\frac{\text{Constant}}{\sqrt{4 \text{ hank}}} = \frac{41.85}{2} = 20.9 \text{ change gear, say 21 teeth.}$$

And in reverse the constant divided by the gear (20.9) would give the square root of the hank which multiplied by itself would equal $2 \times 2 = 4$ hank.

The foregoing calculation for a tension constant has been worked out for a 30″ cone with a working surface of 22″, for a 3½″ diameter bobbin. With a cone of any other length for a 3½″ diameter bobbin or any other length of working surface, the constant would be different.

We will cite another example: A cone 37″ long with a working surface of 35″, the constant would be as follows:

66 layers of 4 hank roving are on a 3½″ diameter bobbin.

66 — 1 = 65 moves of the cone belt on a working surface of 35″ long, 35″ divided by 65= .538″ per each movement of the belt. .538″ divided by .392″ = 1.364 teeth movement of the cone rack and of the 14 tooth gear on the winding shaft.

$$\frac{\cancel{68}^{34} \times \cancel{80}^{10} \times 1.364}{\cancel{8} \times 0 \times \cancel{14}_{7}} = \frac{483.76}{7} = 66.25$$

$$\frac{\text{Constant}}{\sqrt{4 \text{ hank}}} = \frac{66.25}{2} = 33.12 \text{ gear, say 34 tooth tension change gear.}$$

66.25 constant as against 41.85 in the first example. The layers on the 3½″ bobbin are 66 in both examples but the working surface of the cone is 22″ in one case and 35″ in the other, thus the constants vary in direct proportion to the working surfaces of the cones. Tension change gears on American type of roving frames are drivers, therefore the larger number of teeth in them the faster the cone belt will be moved across the cone. On the English type it is just the reverse. The more teeth in the ratchet, the slower the movement.

The lay per inch lengthwise of the bobbin is a more important factor than the length of the cone as the cone comes with the frame and is a fixed factor for that make of frame. The lay per inch bears a direct and important relation to the layers from the empty out to the full bobbin and the one must

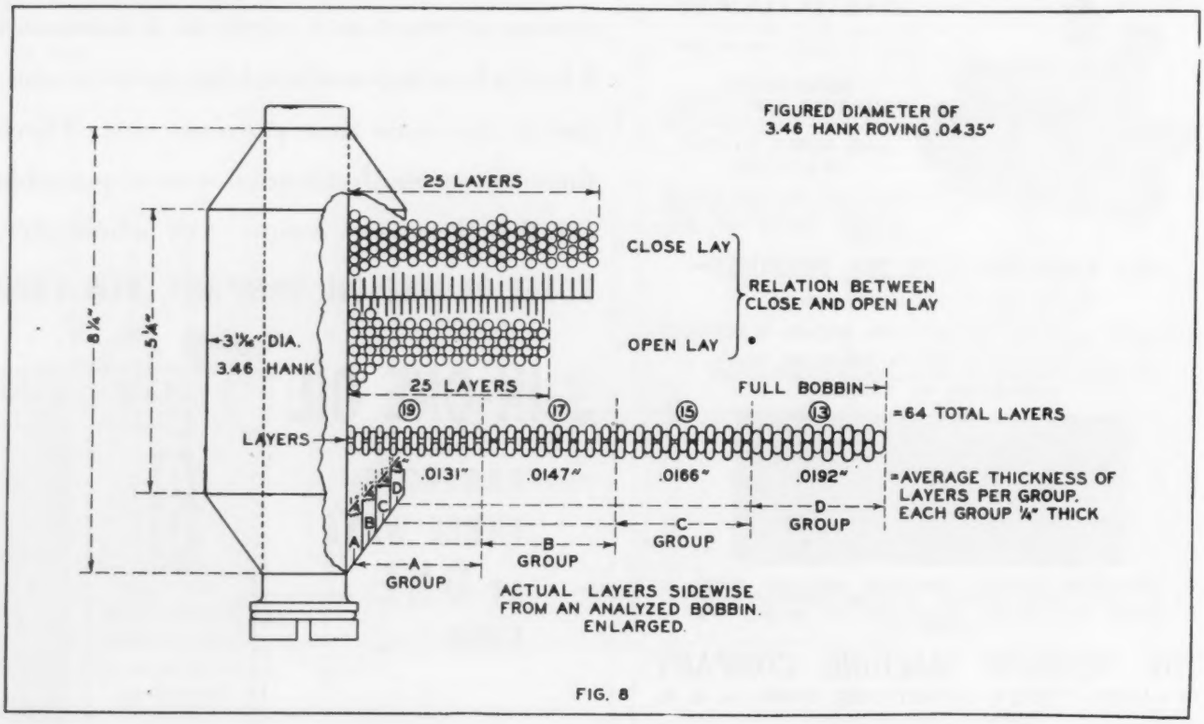

FIG. 8

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GROUP	LAYERS PER GROUP	AVG. THICKNESS PER GROUP	AVG. THICKNESS EXPRESSED GRAPHICALLY
A	19	.0131"	
B	17	.0147"	
C	15	.0166"	
D	13	.0192"	

A STRAND IN GROUP "D" IS 46.5% THICKER THAN IN GROUP "A" BUT OF THE SAME WEIGHT. NOTE THE GRADUAL INCREASE IN THICKNESS OF THE ROVING FROM EMPTY TO FULL BOBBIN

FIG. 9

coordinate with the other, for good tension on a roving frame. See Fig. 8 for illustration.

First is shown the relation between close and open lay. The strands of roving are shown as a round circle. In the close lay these circles all touch one another while in the open lay, the circles do not touch lengthwise but do touch sidewise. It will be noticed on the diagram (Fig. 8) that the 25 layers of close lay extend farther from the empty bobbin than the 25 layers of open lay. These are drawn to scale in relation to each other. The close lay would call for a larger tension change gear, while the open lay would call for a smaller change gear. Also a different constant would be required, i.e. a constant for each kind of lay.

It is at this point where the factor 33 applies. It may be more or less than 33. The exact ratio, however, has not been figured out, but it must be a multiple of the lay per inch for a given hank size. A factor that is little known, although it has always been and is still there, is that the roving is compressed by the action of the presser while the roving is being wound on the bobbin. This action is due to centrifugal force and compresses the layers of roving so that they vary in thickness from the empty to the full bobbin.

Study layers on diagram (Fig. 8). This diagram was made from actual layers sidewise from an analyzed bobbin. This bobbin was analyzed by a superintendent of 100,000-spindle mill in the South. He was interested enough to make a "check up" on my article of a "Bobbin of Roving Analyzed" in November 1934 issue of COTTON. The results are very similar and close enough to prove the fact that the action of the presser does compress the strands of roving while they are being wound.

The table (Fig. 9) shows the figures grouped together in a more convenient form. The groups *A, B, C* and *D* each represent a quarter-inch of thickness on the bobbin and the figures shown are the average thickness for each group.

A scientific fact cannot be established without experimentation and when these experiments have been reduced to a formula the fact has been established.

If all the variable factors that enter into the making of a bobbin of roving could be tabulated and their relation one to each and one to all be figured out, it might be possible to make a positive formula, based on established facts, for a tension constant. This whole subject of tension on the roving, while winding a bobbin, needs continued research for tension is a *most important* factor in the making of good even and strong yarn.

How Can This Man Get More Yard-by-Yard Evenness in Picker Laps?

EDITOR COTTON:

I would like to have you publish in "HOW OTHER MEN MANAGE" some discussion relative to the improvement of yard-by-yard weights of picker laps. I will state that our equipment consists of one-process picking including a blending reserve. The pickers are equipped with one 2-blade beater and one Kirschner carding beater. The blade beater runs at 1,350 r.p.m., and the Kirschner at 1,000 r.p.m., delivering 500 yards per hour of an 11.95-ounce lap per picker. The opening equipment is of late model as well as the distributor system. Our variation is about 12 per cent in yard-by-yard weight, still we seldom have a set-back, due to the full package being well in the allowance of the one-pound variation, or one-half pound either way from standard full lap weight.

Any information your readers can suggest that will be helpful in the way of reducing our yard-by-yard variation will be appreciated. I feel that from 3 to 4 per cent should be sufficient.

CONTRIBUTOR NO. 6422

Card Grinding Methods on Long Staple Cotton

This mill man is very anxious to have others give their methods, and to criticize his procedure. May we hear from you? . . . . . .

EDITOR COTTON:

I should like very much to see some further discussion on card grinding methods and practices in the "HOW OTHER MEN MANAGE" Department. To this end, I will submit the procedure we are using together with the conditions under which we operate. I would appreciate any comments from your readers who, I hope, will also give their own practice.

We have a total of 120 cards, with six grinding. The cards run from 6 A. M. to 1:30 P. M., five days of 7½ hours, a total of 37½ hours weekly.

On *Monday*, the grinders start at 6:00 A. M., rolls going on at 8:00 A. M., start taking off at 1:00 P. M.

On *Tuesday*, rolls off at 7:00 A. M., rolls start at 9:00 A. M.

On *Wednesday*, start taking off at 7 A. M., rolls off at 8:00 A. M., rolls start at 10:00 A. M.

On *Thursday*, start taking off at 8:00 A. M., rolls off at 9:00 A. M., rolls start at 11:00 A. M.

On *Friday*, rolls to be taken off at 8:30 A. M., and put on racks.

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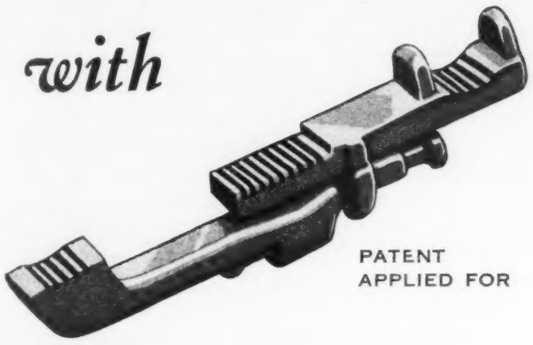

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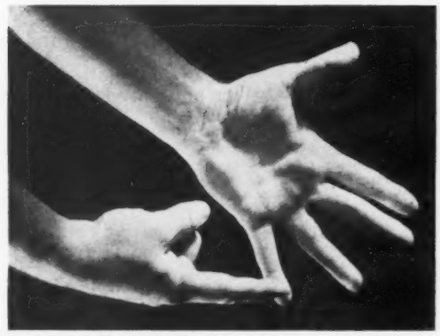

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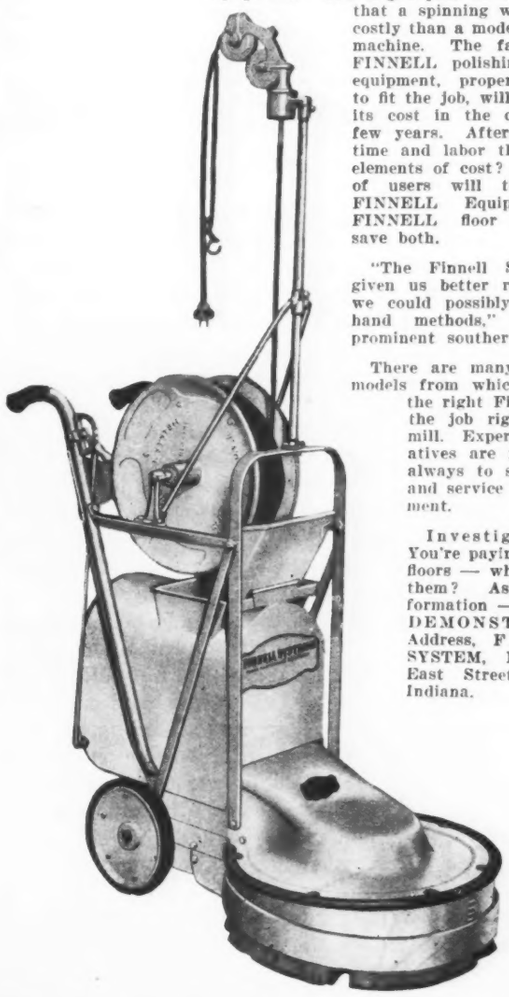

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American 1 7/8-inch staple, 5.90 lbs. per hour at 95% production.
Pima, 1 5/8-inch staple, 3.10 lbs. per hour at 95% production.
M&M rayon, 1 1/2-inch staple, 6.50 lbs. per hour at 95% production.

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We use the 1 5/8-inch staple for making a 39-grain card sliver for 120s yarn. We use the 1 7/16-inch staple for making a 39-grain card sliver for 80s to 100s yarn. We use the 1 1/2-inch rayon staple for a 44-grain sliver for 24s to 100s. The 1 1/8-inch American cotton is used for a 49-grain sliver for from 20s to 50s, and the 1 3/16-inch American staple is used for a 49-grain card sliver for 60s to 80s.

CONTRIBUTOR NO. 6421

Comments on Storage of Filling

EDITOR COTTON:

I was interested in the question of "CONTRIBUTOR NO. 6334" with reference to handling a large number of kinds and colors of filling in his weave room. This was published in full on page 71 of your September 1934 issue, and you have since published several answers.*

My department is responsible for supplying filling to a large weave room, under somewhat similar conditions to those outlined by your correspondent; and in addition we handle a large quantity of warp yarn. Possibly the thoughts that I shall present will not help our friend, and may in fact confuse him; but my intentions are good anyway.

From the standpoint of wanting to condition his filling, perhaps "CONTRIBUTOR NO. 6334" would be justified in erecting bins as outlined in his inquiry. Or if his floor space is so limited that he just cannot take care of the box trucks, the bins might be a necessity. However, my experience is that yarn bins are at the best an evil, even if a necessary one. You may ask why.

The yarn must be handled two additional times; it must be thrown into the bins and must be taken out again, thus increasing the chances of soiling the yarn as well as increasing the cost of handling.

Again, yarn when kept in bins as ordinarily constructed will tend to get old at the bottom and at the back of the bins, unless steps are taken to empty them periodically. This is especially annoying because of varying shades of color and different mixes of cotton not always showing up the same. It is always a good plan to keep a fresh stock of filling on hand if at all possible.

Yarn, especially filling, in a large bin is more difficult to check correctly, as it is harder to estimate large quantities than it is smaller lots in box trucks.

Keeping yarn in bins, I have found, is conducive to an increase in left-over yarn when orders are completed. At one time we had quite a few yarn bins. We also stacked some "tailings" on the floor, and were even permitted to store some stock yarn in one of the warehouses to make room for current production. We began to tackle the problem of reducing our stock in process. We dismantled practically all of our yarn bins. We brought most of the yarn in from the warehouse. And were we crowded? You bet we were. But when the yarn began to get in everybody's way, steps were taken to get rid of it. But the best part of it was that we adopted means to reduce the probability of running over on orders until now we can get through the same production with 20 to 25 per cent less stock in process than formerly.

We try to keep our trucks of filling as convenient to the looms as possible, but we select certain alleys, etc., for the filling and endeavor to keep our trucks lined up in these places to facilitate checking by the man who orders the filling, as well as to make it easier for the filling haulers to locate the kind of filling needed.

I am sorry that I cannot offer "CONTRIBUTOR NO. 6334" more encouragement to go ahead with his yarn bins, but I would advise avoiding them unless absolutely necessary. TEX (GA.)

(*) Previous discussions of these questions have appeared as follows: Page 99, October 1934 issue of COTTON; page 83, November 1934 issue; page 73, January 1935 issue; page 159, April 1935 issue.—THE EDITOR.

An Old-Timer Says—

(Continued from page 81.)

department heads to co-operate—the ability to win the confidence of the operatives—the ability to create friendly rivalry, not only among department heads, but among operatives and section men, to work for the highest possible production; and that I believed he had the ability to do that.

Therefore, his not having practical experience in manufacturing the product which that mill was turning out, would not be a major handicap, if he could carry through the above qualities which he had been able to do in the plant he was operating. After considering the matter for several weeks, he finally accepted the position and made a wonderful success.

I hope that every reader of the OLD-TIMER page will always remember the Baer-Lewis fight, because if you will remember the Baer-Lewis fight, you will also remember that OLD-TIMER had the opportunity of seeing this fight, and that he got a lesson from what he saw at this fight and has passed along the thought to you, so that you will ever keep in mind the importance of the word Organization.

Why wait until January 1st to make that resolution to begin systematic study to improve your mind? Start tonight!

There is one *sure* way to get a bigger job.

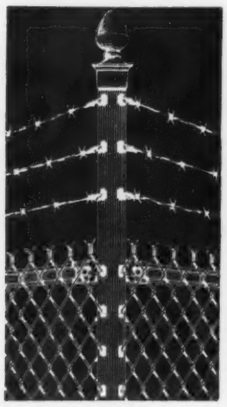
There is one *sure* way to be successful in whatever job you hold.

Without it you may as well hang up the sponge and decide to just dry up on the job you now hold.

With it you are just as sure to progress as day is certain to follow night.

It is *Knowledge*.

ONLY 12 FITTINGS *against the rust hazard of 35 to 50*



Stewart Beam terminal post construction calls for only 12 "fittings", where other makes with ordinary pipe posts require 35 to 50. Stewart Fabric is woven into flange of the beam post in "cork screw" fashion thereby eliminating the need for tension bars, bands, bolts and other points of rust. By reducing the number of these rust points Stewart construction assures complete dismissal of your protection problems.

Stewart FENCES

"The World's Greatest Fence Builders Since 1886"

THE STEWART IRON WORKS CO., Inc.,
106 Stewart Block—CINCINNATI, O.
Agents wanted in unallotted territories.

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"ATLAS BRAND"
EMERY FILLETING

"The New Flexible" "Needs No Damping"

Stocks in all the leading Mill Centers

TRADE MARK ATLAS

The Standard Card-Grinding Medium

GUARANTEED "A" QUALITY THE ONLY QUALITY WE MAKE

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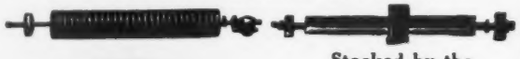

Stocked by the *Principal Mill Supply Houses*

Sole Agents for Dronsfield's Machinery for U. S. A.:—
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250 Devonshire St.
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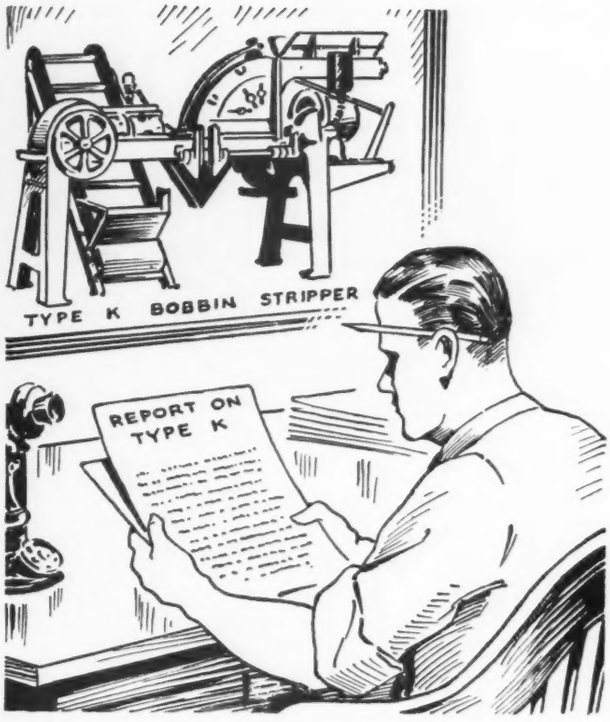

Saved... $1200.00 A YEAR

This superintendent's report on the efficiency of their new Type K Bobbin Stripper, which replaced a Double-end Utsman machine, shows a yearly saving of $1200.00, in labor alone. Such savings are made possible by the speed (from 100 to 120 bobbins a minute) and accuracy of the Type K machine.

... AND *Seconds Reduced*

The Superintendent also reports, "A great reduction in seconds due to breakouts. This is due entirely to the ability of the new Type K to clean bobbins without damaging them in any way."

The saving in labor cost, as well as in reduction of seconds, makes the Type K Bobbin Stripper a necessity in every mill.

Write for Bulletins about

the new* TYPE K *Bobbin Stripper

The Terrell Machine Co., Inc.

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MR. LUTHER PILLING, Danielson, Connecticut, *Representative for N. Y., N. J., Pa., New England States, and Canada*

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161. Fence—How to Choose It—How to Use It—book explains in detail how to chose a fence, determine values and prevent costly mistakes. Cyclone Fence Co., Dept. 4211, Waukegan, Ill.

163. Roto-Koner—Bulletin describing the new No. 44 Universal Winder, known as the Roto-Koner for winding knitting yarns, which has many new and distinctive features. Universal Winding Company, 95 South St., Boston, Mass.

164. Johnson Rotary Pressure Joints—Bulletin describing this rotary pressure joint which requires no packing, no lubrication and no adjustment, giving installation and maintenance instructions, types, sizes, dimensions and prices. The Johnson Corp., Three Rivers, Mich.

165. New Departure Speed Power Unit—Bulletin giving details of this compact, self-contained driver that gives a thousand different speeds at a turn of the wrist. New Departure Manufacturing Company, Bristol, Conn.

169. Tube-Tex High Speed Steamer and Finisher—Describing these new steaming and finishing machines for tubular knitted fabrics, which handle cotton, rayon, woolens and mixtures at speeds up to 45 yds. per minute, being unique in that patterns, designs and stripes are finished straight and free from any distortions. H. W. Butterworth & Sons Co., York and Cedar Sts., Philadelphia, Pa.

171. Design of V-Belt Drives—48 page booklet full of valuable tables and data showing the type, number and design of V-Belts that will give the greatest efficiency on each particular drive. The Gates Rubber Company, Denver, Colorado.

173. Over the Rough Spots—28 page booklet describing Stonhard resurfacer for repairing and resurfacing concrete, wood, brick and composition floor, making permanent repairs to badly work surfaces. Stonhard Company, 401 North Broad St., Philadelphia, Pa.

174. Robertson Chain Link Fencing—giving details and specifications of Robertson chain link fencing, providing efficient and low cost protection for mill property. W. F. Robertson Steel & Iron Co., Elm & Second Sts., Cincinnati, Ohio.

176 Sonoco Products—A 60 page illustrated booklet giving descriptions, specifications and charts of the many Sonoco products, including: bobbins, cones, tubes, cork cots, roving cans, spools, rolls, etc. Sonoco Products Co., Hartsville, S. C.

177. New Advances in Loom Equipment—12-page booklet describing discoveries and advances which loom manufacturers have made in keeping pace with these discoveries down to the present time—non-technical, informative, amply illustrated. Emmons Loom Harness Co., Lawrence, Mass.

179. Improved Airplane Propeller Exhaust Fans and Ventilating Equipment—a 40-page catalog showing the important factors to be considered in a propeller type fan to secure the greatest efficiency, with data and tables showing fan capacity and details of each type and size of fan and views of typical installations. Propellair, Inc., Springfield, Ohio.

180. These Extra Cushion Cork Cots Offer Six New Advantages—a 6-page folder which tells the story of the new Armstrong's Extra Cushion Seamless Cork Cot from the viewpoint of the mill man. The folder describes HOW the new cot is of advantage to mills spinning cotton yarn; WHY it is better, and something about its method of manufacture, and also gives PROOF in the form of some tests that have been made with this new roll covering material. Armstrong Cork Products Co., Textile Division, 930 Arch St., Lancaster, Pa.

181. Eagle Penetration Roll—Illustrated pamphlet showing the advantages of the new Eagle Penetration Roll, made to fit in any type or model slasher size box, with complete description and suggestions for installation. Eagle Iron Works, Greenville, S. C.

182. M. & M. Hooks and Levers—Illustrated pamphlet descriptive of the M. & M. Hook and Lever, the latest improvement in weight levers. Illustrations show the construction of the lever and the importance of proper weighting of the top roll is stressed. M. & M. Textile Lever Co., P. O. Box 1552, Greenville, S. C.

183. Schieren-izing—describing leather belt manufacture from the selection of hides through the various processes to the final tests, also showing illustrations of belts with unusually long service lives. Chas. A. Schieren Co., 31 Ferry St., New York, N. Y.

185. Dulux—The White Finish that Stays White—New book describing the new ten-point finish for factory walls and ceilings, the finish that stays whiter, stays cleaner and stands repeated washings. E. I. duPont de Nemours & Co., Finishes Division, Wilmington, Del.

186. F-7 Feeder Bulletin—Describing the better blending that is secured and the important cleaning operation that is added by using F-7 feeders, in place of bale breakers. Saco-Lowell Shops, 147 Milk St., Boston, Mass.

187. The Wildman Single Head Full-Fashioned Hosiery Machine—Literature on request from the Wildman Mfg. Co., Full Fashioned Division, Norristown, Pa.

188. Form 374—This form enables you to gather your own cost data on your sewing machines and determine whether new Union Special Machines will show big savings. Furnished free by Union Special Machine Co., 400 No. Franklin St., Chicago, Ill.

189. Walker Steel Products—Eight page illustrated catalog descriptive of the Walker method of quickly, checking the efficiency of machinery. The improved one-unit switch case and pedestal for above or below floor installation, is discussed in a practical manner. Walker Electrical Co., 526 Means St., N.W., Atlanta, Ga.

190. Warp Conditioning Units for Synthetic Yarn Slasher—booklet giving full details will be sent free to mill men who write on their company letterhead. Chas. B. Johnson Co., Paterson, N. J.

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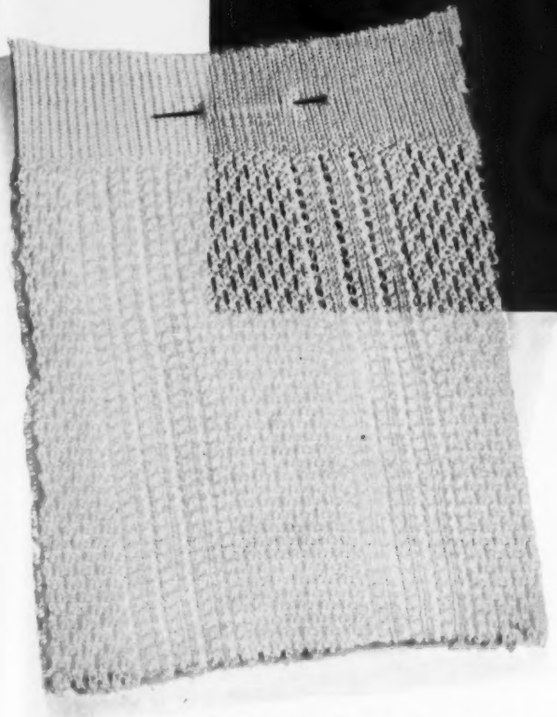

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Give your line new smartness . . . real individuality and distinction with the merchandise you can produce on this versatile machine!

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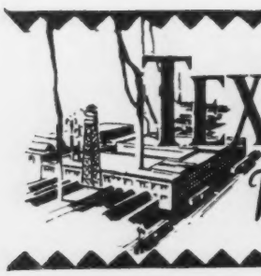

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155. Link-Belt Catalog 1274 on the P.I.V. Gear—giving details of this positive variable speed control. Link-Belt Co., 910 South Michigan Ave., Chicago, Ill.

157. Grading Rules and Complete Specifications for Laying and Finishing Maple Floors—Maple Flooring Manufacturers Association, 1794 McCormick Bldg., Chicago, Ill.

161. Fence—How to Choose It—How to Use It—book explains in detail how to chose a fence, determine values and prevent costly mistakes. Cyclone Fence Co., Dept. 4211, Waukegan, Ill.

163. Roto-Koner—Bulletin describing the new No. 44 Universal Winder, known as the Roto-Koner for winding knitting yarns, which has many new and distinctive features. Universal Winding Company, 95 South St., Boston, Mass.

164. Johnson Rotary Pressure Joints—Bulletin describing this rotary pressure joint which requires no packing, no lubrication and no adjustment, giving installation and maintenance instructions, types, sizes, dimensions and prices. The Johnson Corp., Three Rivers, Mich.

165. New Departure Speed Power Unit—Bulletin giving details of this compact, self-contained driver that gives a thousand different speeds at a turn of the wrist. New Departure Manufacturing Company, Bristol, Conn.

169. Tube-Tex High Speed Steamer and Finisher—Describing these new steaming and finishing machines for tubular knitted fabrics, which handle cotton, rayon, woolens and mixtures at speeds up to 45 yds. per minute, being unique in that patterns, designs and stripes are finished straight and free from any distortions. H. W. Butterworth & Sons Co., York and Cedar Sts., Philadelphia, Pa.

171. Design of V-Belt Drives—48 page booklet full of valuable tables and data showing the type, number and design of V-Belts that will give the greatest efficiency on each particular drive. The Gates Rubber Company, Denver, Colorado.

173. Over the Rough Spots—28 page booklet describing Stonhard resurfacer for repairing and resurfacing concrete, wood, brick and composition floor, making permanent repairs to badly work surfaces. Stonhard Company, 401 North Broad St., Philadelphia, Pa.

174. Robertson Chain Link Fencing—giving details and specifications of Robertson chain link fencing, providing efficient and low cost protection for mill property. W. F. Robertson Steel & Iron Co., Elm & Second Sts., Cincinnati, Ohio.

176 Sonoco Products—A 60 page illustrated booklet giving descriptions, specifications and charts of the many Sonoco products, including: bobbins, cones, tubes, cork cots, roving cans, spools, rolls, etc. Sonoco Products Co., Hartsville, S. C.

177. New Advances in Loom Equipment—12-page booklet describing discoveries and advances which loom manufacturers have made in keeping pace with these discoveries down to the present time—non-technical, informative, amply illustrated. Emmons Loom Harness Co., Lawrence, Mass.

179. Improved Airplane Propeller Exhaust Fans and Ventilating Equipment—a 40-page catalog showing the important factors to be considered in a propeller type fan to secure the greatest efficiency, with data and tables showing fan capacity and details of each type and size of fan and views of typical installations. Propellair, Inc., Springfield, Ohio.

180. These Extra Cushion Cork Cots Offer Six New Advantages—a 6-page folder which tells the story of the new Armstrong's Extra Cushion Seamless Cork Cot from the viewpoint of the mill man. The folder describes HOW the new cot is of advantage to mills spinning cotton yarn; WHY it is better, and something about its method of manufacture, and also gives PROOF in the form of some tests that have been made with this new roll covering material. Armstrong Cork Products Co., Textile Division, 930 Arch St., Lancaster, Pa.

181. Eagle Penetration Roll—Illustrated pamphlet showing the advantages of the new Eagle Penetration Roll, made to fit in any type or model slasher size box, with complete description and suggestions for installation. Eagle Iron Works, Greenville, S. C.

182. M. & M. Hooks and Levers—Illustrated pamphlet descriptive of the M. & M. Hook and Lever, the latest improvement in weight levers. Illustrations show the construction of the lever and the importance of proper weighting of the top roll is stressed. M. & M. Textile Lever Co., P. O. Box 1552, Greenville, S. C.

183. Schieren-izing—describing leather belt manufacture from the selection of hides through the various processes to the final tests, also showing illustrations of belts with unusually long service lives. Chas. A. Schieren Co., 31 Ferry St., New York, N. Y.

185. Dulux—The White Finish that Stays White—New book describing the new ten-point finish for factory walls and ceilings, the finish that stays whiter, stays cleaner and stands repeated washings. E. I. duPont de Nemours & Co., Finishes Division, Wilmington, Del.

186. F-7 Feeder Bulletin—Describing the better blending that is secured and the important cleaning operation that is added by using F-7 feeders in place of bale breakers. Saco-Lowell Shops, 147 Milk St., Boston, Mass.

187. The Wildman Single Head Full-Fashioned Hosiery Machine—Literature on request from the Wildman Mfg. Co., Full Fashioned Division, Norristown, Pa.

188. Form 374—This form enables you to gather your own cost data on your sewing machines and determine whether new Union Special Machines will show big savings. Furnished free by Union Special Machine Co., 400 No. Franklin St., Chicago, Ill.

189. Walker Steel Products—Eight page illustrated catalog descriptive of the Walker method of quickly, checking the efficiency of machinery. The improved one-unit switch case and pedestal for above or below floor installation, is discussed in a practical manner. Walker Electrical Co., 526 Means St., N.W., Atlanta, Ga.

190. Warp Conditioning Units for Synthetic Yarn Slasher—booklet giving full details will be sent free to mill men who write on their company letterhead. Chas. B. Johnson Co., Paterson, N. J.

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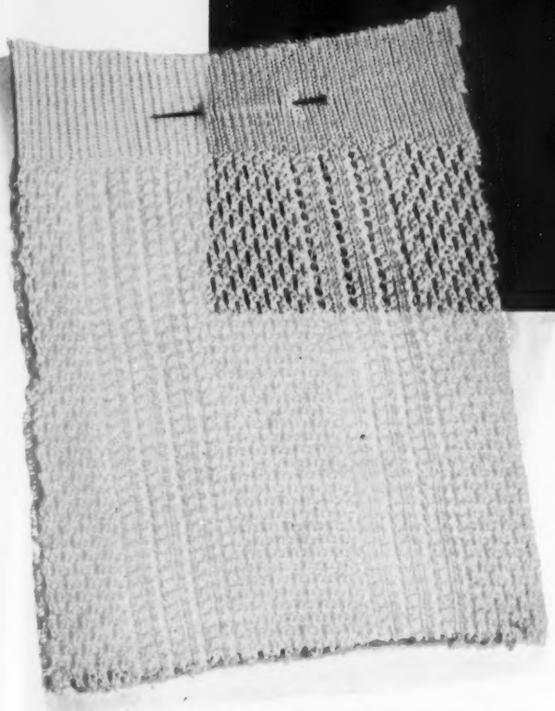

Here's a tuck design that's really different—just one of the almost unlimited number of new and unusual patterns you can produce on the SCOTT & WILLIAMS AUTOMATIC BODY MACHINE.

This new machine not only gives you a much more interesting and diversified pattern range for tuck fabrics; it also greatly increases your yarn scope . . . for lighter yarns can be used than before. It is designed to meet the open wear trend—and of course any of the tuck constructions now in popular use.

The sample shown here is an actual size reproduction of one of the new tuck designs it makes possible—this particular one is an extremely light weight fabric adapted to spring and summer wear.

Give your line new smartness . . . real individuality and distinction with the merchandise you can produce on this versatile machine!

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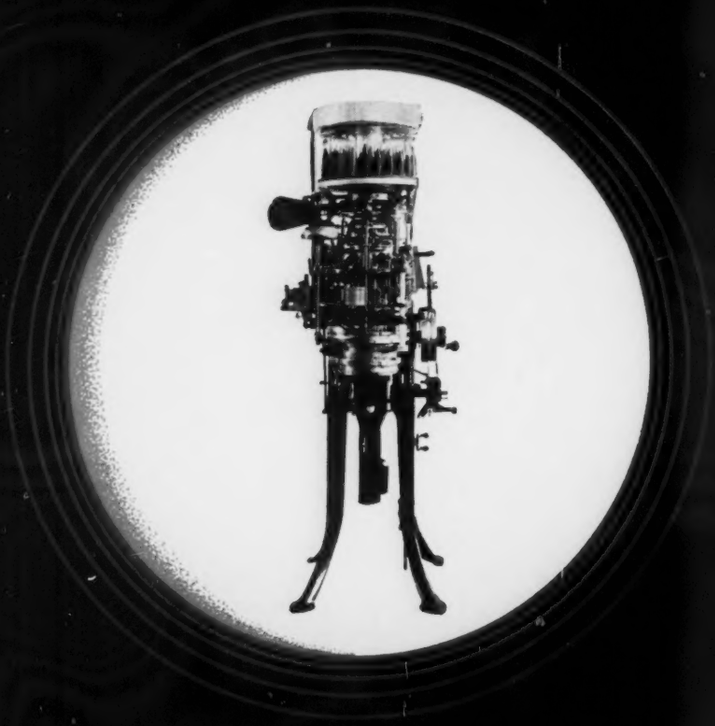

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BUT—this machine is *unique*. EXCLUSIVE is the word that truthfully describes its products. No other machine offers so many pattern possibilities and produces such a wide variety of interesting effects in fine gauge men's half hose.

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KNITTING SECTION

SILK THROWING —for Full-Fashioned Hosiery

By Henry W. Hoffmann

THE proper throwing of silk for making full-fashioned hosiery is just as important to the hosiery manufacturer as the proper knitting of hosiery and no matter how careful the manufacturer is in regard to proper adjustment and upkeep of knitting machinery, if he receives poorly thrown silk, the result is poor quality hosiery.

Unfortunately, many hosiery knitters are not familiar with the methods used for throwing silk for full-fashioned hosiery and the result is that when trouble occurs in the knitting of the silk received from the throwster, the knitter is not able to determine what might be wrong so that the trouble can be rectified.

In writing this article, I will endeavor to aid the knitter in solving some of the silk problems that arise in making hosiery and also give him a general idea of the various operations in the throwing of silk and how carelessness on the part of each operator will affect the quality of hosiery produced.

As practically every one in the silk industry knows, raw silk is received by the throwster in bales and each bale weighs approximately 135 pounds. Most of the silk used for hosiery is 13/15 denier, although a few manufacturers use 20/22 denier for splicing or re-inforcement.

Silk as purchased from the importer is graded according to evenness, cleanliness, etc., and when silk is purchased by the hosiery manufacturer, it is purchased by grade, such as 90 per cent silk, 85 per cent silk.

Many times a hosiery knitter will complain about the unevenness of silk; in other words, there are too many rings in the hosiery. The throwster is blamed in many cases for this and sometimes is accused of not giving the hosiery manufacturer the grade of silk he purchased. I happen to know how careful every reputable throwster is in regard to the purchasing of silk and seeing that the manufacturer gets the grade of silk ordered but unfortunately the rules for testing silk are such that although the tests show that the bale of silk is up to the grade specified, when the knitter receives the silk, he finds that the denier is very uneven.

In the testing of silk only one book is taken from each bale and tested. A book of silk weighs less than five pounds and according to rules of testing this book should show how the bale will run on an average for evenness, cleanliness, etc. So when it comes to a poor quality of silk, I can only say to the knitter that he should not blame the throwster, because every throwster is doing the best he can to get good silk and with silk prices as they are today, good silk as wanted by the knitter is hard to buy.

Soaking the Silk

The first operation in a throwing plant in preparing silk for knitting is the soaking of silk. The oils used for the soaking of silk are very delicate oils and must be compounded properly, otherwise the knitter will have trouble in trying to knit the silk. Each throwster has his own formula of soaking and the kind of oils used and the compounding of these oils is a chemist's problem and does not necessarily interest the knitter.

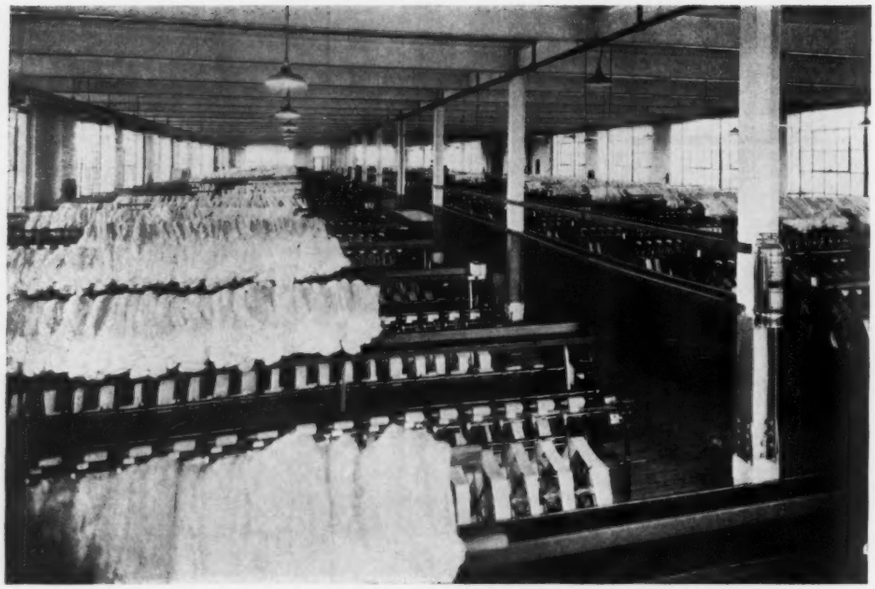
The principal method used in soaking silk is as follows:

The silk is placed in oblong tubs, usually holding a bale of silk, although some throwsters soak only 100 pounds of silk at a time.

The soaking formula usually is 60 gallons of water to from 15 to 20 pounds of oil to 100 pounds of silk. The oil content depends upon the kind of oil used, therefore with some oils, less oil is used, whereas a greater amount of another kind of oil must be used.

In the soaking of silk, the general method is to put a layer of silk in the tub, then pour some of the solution on this layer of silk. Then put another layer of silk in the tub and pour more solution, repeating this until all the silk and solution has been placed into the tub. When this operation is completed, the silk then remains in the soaking solution for at least 12 hours. The method just described is what may be called the "old fashioned method of soaking." The more modern method of soaking is by soaking silk in a machine that operates under forced pressure and forces the soaking solution through the silk. This process only requires about 20 minutes for soaking and results in a saving of time.

However, my experience as a knitter has proven



A Silk Winding Department

(Illustrations, courtesy R. K. Laros Silk Company)

to me that the old fashioned method of soaking is the best method I have used because of better penetration and this results in the silk running better on a knitting machine and usually makes better fabric.

Most knitters will say that while it is a good thing to know how throwsters soak their silk, this knowledge does not help them any in the knitting of the silk. This may be true but here is what the knitter should know about the soaking of the silk he is using.

Acidity and Alkalinity in Soaking

In the soaking of silk, the acidity or alkalinity is an important factor to the knitter and most silk problems on a knitting machine are caused by the soaking being too much on the acid or too much on the alkaline side.

An acid soaked silk is usually a harsh silk but a proper acid soaking will take moisture very rapidly and hold moisture for a longer period of time. As the proper conditioning of silk by the knitter means a great deal in securing good hosiery an acid soaking would be ideal, providing it could be controlled so that the degree of acidity would always be uniform.

I am told, however, that the degree of acidity in an acid soaking is hard to control, mainly because raw silk in nature is acid and no two bales of silk are alike in regard to the acidity of the raw silk.

An excessive acid soaking is dangerous to a knitting machine, because it has a tendency eventually of pitting or cutting the metal of the needles at the point between the sinkers and knocking over bits when the needle bar is in an upright position. Excessive acid soakings also have a tendency to blacken the needles and when this condition occurs it is usually a sign that the soaking oils used by the throwster are not correct for knitting purposes.

If at any time signs of cut needles or blackening of needles show on a knitting machine, my recommendation is that one should notify the throwster at once and also have an analysis made of the silk to determine the degree of acidity of the soaking bath with which the silk was soaked.

Using silk on a knitting machine that causes this needle condition is dangerous as it will result in the needles getting so bad that the knitting machine will eventually have to be re-needled prematurely, which of course is costly.

An excessive alkaline soaking is also dangerous to a knitting machine because an alkaline soaking disturbs the gum or sericin of the silk. Whenever the sericin or gum has been disturbed or softened, it means that it will strip off on the tensions, clog up the carrier tubes, enter into the sinker heads, and cause the sinker slots to wear down rapidly, resulting in too much looseness in the heads, which mean bad sinker lines in the knitted fabric.

An alkaline soaking gives the knitter the soft silk that is desired by most knitters but there is a limit to the amount of softness that can be obtained and at the same time not cause trouble in knitting.

All oil manufacturers and chemists realize that for correct knitting purposes the silk should be soaked as near neutral as possible. These oils are all compounded and analyzed with the pH method of determining the acidity or alkalinity of the soaking bath and they have always recommended a neutral or near neutral bath to the throwsters.

However, the oil manufacturers or the throwsters are not to blame for many of the knitting troubles that occur with the running of silk, because the knitter is always complaining that the silk is either too hard or that it does not take moisture and hold it and in order to stop these complaints the throwster and oil manufacturer will make changes in the formula, resulting in giving the knitter the desired results, but at the same time other troubles will develop later due to the fact that the degree of acidity or alkalinity has been changed.

In experiments I have made over a period of several years, I have found that an acid soaking, having a pH test of 6.5 or a alkaline soaking having a pH test of from 7.5 to 8.0 is the proper soaking for any silk, providing the oils are also compounded correctly. In a pH test neutral is 7.0, so it means that the soaking should never be very far away from the neutral point. Silks soaked with these degress of acidity or alkalinity will produce a firm flat stocking, give better selvages and the knitted fabric will move up and down on the needles without sticking. Fabric not moving freely on the needles and cutting of fabric can usually be traced to the soaking of the silk and when this occurs the throwster should be notified at once.

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Manufacturers may now have the economies and many manufacturing advantages of the Wildman Single Head Full Fashioned Hosiery Machine—at *new lower competitive prices* . . . May we get in touch with you?

WILDMAN MANUFACTURING CO.
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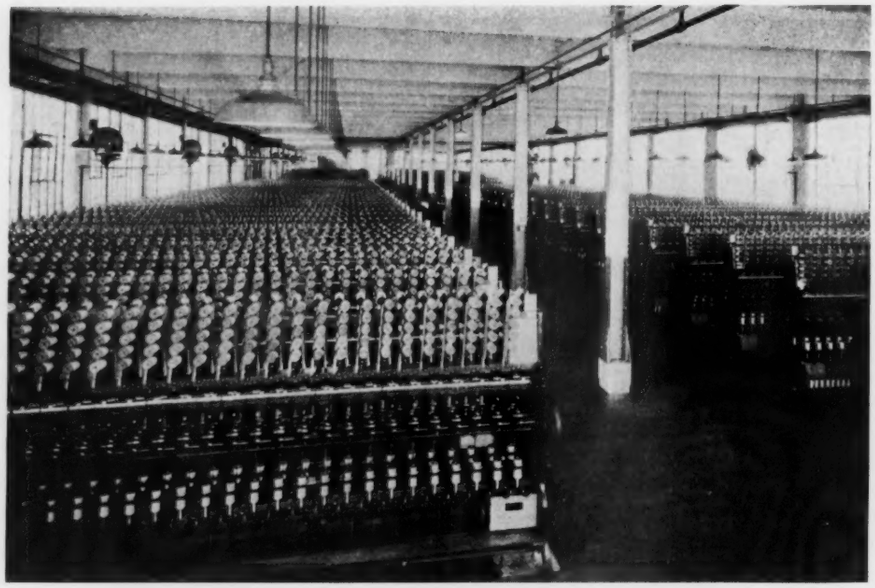
Tinting the Silk

The tinting of silk is done in the soaking bath. When the oil and water has been thoroughly mixed, the tint or dyestuff for tinting is added to the solution. All dyestuffs used for tinting raw silks are fugitive colors and are easily removed when hosiery is boiled off, prior to the dyeing operation.

In the matter of tinting and the colored tints used, I feel that here is where many throwsters are not careful enough. Many times I have debated with throwsters that a heavy tinted silk does not run as well as silk with a light tint or not tinted at all. Also certain colors in tints give more trouble than certain other colors. My experience has been that it is best whenever possible, to use natural silk with no tinting. However, for a throwster this is impossible because if he did not tint the various lots into various colors, a general mix-up of grades, threads and sizes would occur in his plant. In the manufacturing of full-fashioned hosiery, many different grades of silk, number of threads and twists are used and the only way that the throwster can keep all these lots of silk separate is by tinting each lot a different color. However, my experience with tints has been that the colors light blue, canary or light yellow, light tan, and light green are the best tints to use and rarely affect the running quality of the silk or the dyeing. Such colors as red and lavender, as well as gray, have been the colors that in the past have been troublesome and seem to affect the running of the silk.

I am sure, however, that all knitters will agree that in the tinting of silk for them that a throwster should keep his colors as light as possible and never give the knitter too deep or heavy colored tinting.



A 5B silk spinning department

Extracting and Winding

After the soaking operation, the silk is removed from the tubs and placed into an extractor and whizzed as dry as possible. The silk is then given to the winding department. This is the department that winds the silk from the skeins onto the spools or bobbins.

In this operation the reeling of the silk at the filatures has a great bearing on the winding of the silk from the skeins to the bobbins. If the skeins are snarled or tangled the ends continually break down with the result of any number of knots being tied in the single strands of silk. Another cause for many knots in the single end is when the winding is done by an unskilled operator.

When the knitter gets a lot of silk that has run poorly or was wound by an unskilled operator, he will notice that many small specks appear in the knitted fabric. These small specks are the knots tied in the single end or strand of silk in the winding operation. As most of the poor winding of silk is caused by bad reeling at the filatures, the throwster should not be blamed when too many specks appear in the knitted stocking because the throwster cannot tell before winding the silk whether the silk as received from the importer will wind satisfactorily. When the throwster does have a lot or bale of silk that runs poorly in winding, it increases his cost of winding and therefore he is just as anxious to have the silk wind with as few knots as possible, as he knows that good running silk not only decreases his cost of winding but will also make a more satisfactory stocking for the knitter.

(Editor's Note—This discussion of silk throwing will be concluded in the December issue.)

Propper-McCallum Merged with Belding-Hemingway

In the acquisition of the Propper-McCallum Hosiery Co., by the Belding Hemingway Co., the executive personnel of the former concern was absorbed, with the exception of George B. McCallum, president and chairman of the board of the Propper-McCallum board, who while retiring as an official will continue active on the new board. This announcement was made by Raymond C. Kramer, Belding company head. He added that officials of the Belding Hemingway Co. will function in their respective posts in the merged concern and that the Propper-McCallum selling organization will remain intact. Between $350,000 and $400,000 will be spent for new equipment in the Propper-McCallum plants, Mr. Kramer said, and an aggressive spring advertising campaign is planned.

PHILADELPHIA—H. C. Aberle Co., and Quaker Hosiery Co. were involved in a suit filed in the Federal District Court here, the former claiming that the Quaker concern infringed on the Aberle patent for improvements in elastic welts for stockings. Counsel for Aberle asked court for an injunction to restrain the Quaker Hosiery Co., from continuing its alleged infringements and for orders requiring the defendant to render an accounting of the profits it has made from previous infringements and to pay these and damages to the patent owners. The patent was issued to Aberle May 24, 1932.

In full-fashioned knitting, no single factor is of greater importance than the performance value of good needles. Hosiery perfection on a volume basis is achieved with the best needles. That we are America's largest producers of Spring-Beard Needles and that nearly all manufacturers of fine quality silk stockings are standardized on Royersford Needles is a tribute to profitable performance.

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ROYERSFORD NEEDLES

RIBBERS

Notes on Their Operation and Adjustment

EDITOR COTTON:

For quite a number of years I have been reading with much interest the numerous articles by practical mill men, pertaining to hosiery manufacturing problems, in your valued publication. It is gratifying to note that they have increased both in number and in scope, covering the various phases of seamless and full-fashioned hosiery.

I have not seen a great deal of material to date on rib machines, and in view of this fact I am taking the liberty of offering for your approval a series of articles covering the care and operation of these machines. Unfortunately, I do not have a bag of cure-all remedies to offer your readers, nor do I consider myself capable of competing with your various writers. However, I will attempt to present some of the rights and wrongs which have come to my attention in the past and still do in regard to rib machine troubles.

It is not my intention to cover any particular make of ribber but rather to consider rib machines as a whole. There are three makes of ribbers on the market today, each having various devices and attachments developed for some specific purpose which tends to put each make in a class by itself. Plain ribbers are very much alike regardless of make and therefore have a great deal in common as far as care, operation and adjustments are concerned.

It is customary in life to begin at the bottom and go up, but, custom be hanged, we will begin at the top and go down. The middle of a ribber, like a good ripe melon, is the most interesting.

The Stop Motion

It's Monday morning, Brother Fixer, and you are down in the middle of your alley working on one that's all tore up. They will blow up on Monday morning and knock your customary good nature clear over into the next county. It may be simply tough luck, but more likely there is a reason. Rib machines do not act up just to be contrary. You feel the presence of someone standing behind you. You answer his "Good morning"; it's the boss. "How is everything this morning?" "O. K., except this mess;" "What in thunder caused that?" "Stop motion failed to work." "Are all the others in working order?" "I think so." "Oh, you think so, why not make sure?"

So the boss proceeds to inspect a few more machines and finds several not threaded through the stop motion guide, others with a needle stuck through the trip which means that the stop motion could not act at all and for some unknown reason the yarns are not running over the sweeps on other machines. Looks bad, Brother, he's *looking* for trouble, and what's worse, he's *finding* it.

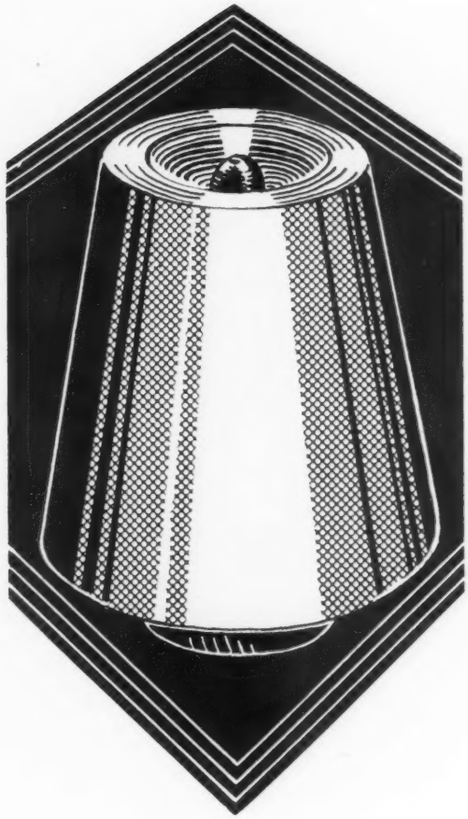
Next, he stops a machine, breaks the yarn just above the cone; sure, he's testing it, and you *hope* it will stop. *But it pressed off.* One more stop motion not working right. Yes, you were feeling bad when the boss dropped in and you feel worse now.

So you proceed to tell him that you instructed your machine operator how to thread up and to call your attention to every stop motion that failed to work right. True, your machine operator should do *his* job, and *your* job includes *getting* him to do it without being told every day.

So the boss leaves, and you decide to get your stop motions in good shape, and keep them so. A good decision, brother, carry it out. It matters little whether it be a one-end stationary stop motion or a four-end revolving type—they must be kept in first-class condition or you will soon pile up waste, broken needles, press-offs, jam-ups and the like. If you see a revolving stop motion wobble like a drunken sailor, do something about it before it gives trouble.

And don't forget the mechanical stop motion or knock-off. Keep it set close so that it will act immediately in case of broken needles, press-offs, load-ups or other machine failures. In short, when you think of stop motions, include *everything from the take-up rolls upward* which has to do with stopping the machine in case of trouble.

There are some types of stop motions which should not be lubricated at certain places. They are plainly marked. Do not oil. Others require an occasional oiling to keep them in trim. Stop motions with porcelain-tipped sweeps are preferable especially when running rayon or fine single cotton yarn. It often becomes necessary to put additional yarn guides on revolving stop motions to keep the yarns separated



B&C

Mercerized Yarns
For the Knitting Trade

BOGER & CRAWFORD,
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Chicago, Ill.

Many fixers simply twist a piece of bailing wire around the stem of the stop motion, make a loop in each end and call it O. K. That of course is both the *easiest* and the *laziest* way to do it, but not the *best* way. There are numerous simple ways to make additional guides out of round or flat steel; they should be equipped with porcelain eyes.

The Dial Shaft Controlling Mechanism

It may interest the rib machine man of today to know that away back in 1758 ribbed fabric was being made by machine; up until that time all ribbed fabric was made by hand. The first rib machines to be built were all dog machines, many are still in use, and some are perhaps still being built.

In the year 1890 the dogless device was first invented in England, and today we have several different kinds of dogless devices, all are far superior to the old dog machines. As we all know, the dogs in the old style machines caused vertical lines to appear in the fabric and the fabric did not come down freely on account of the dogs; press-offs were hard to pick up and it required a lot of tinkering and guess work when it became necessary to advance or retard the dial.

Bringing out the dogless attachment naturally added considerable mechanism to the machine; keeping it in shape means additional work for the fixer. The added flexibility of a machine with a dogless attachment over an old dog machine more than offsets the extra work and upkeep expense involved. All of the original dogless attachments were designed to control or hold the dial shaft and dial from *above the yoke* or *above the dial cap* on machines not having a yoke.

Today we have machines with dogless devices which hold the dial and dial shaft stationary *from below the dial.* The latter are really a blessed event when compared with both dogs or overhead dogless attachments. With one clean stroke the new device wipes out all of the troubles which were common on the dog machines and the overhead dogless devices. The new dogless device is simplicity itself, it has few adjustments, no delicate parts to get out of order, nothing that will wear out easily. Perhaps I have left the impression that all overhead dogless devices are trouble makers; that of course is not true, some have been giving excellent service and always will.

One of the most common mistakes made by rib fixers in connection with overhead dogless devices is to let the machines run until they develop several kinds of trouble before they take some definite action to stop it. I do not mean that they are lazy, no, not that, the lazy ones are still looking for a job; I mean they do not pay enough attention to little things, and simply let them alone until they develop into a big job.

Let me give a homely illustration from everyday life: We are being constantly reminded, brush your teeth twice a day—see your dentist twice a year; watch your diet; have your car doped every thousand miles; and so on—but do we do it? No, we wait. We do not watch the little things. When the tooth hurts and when the car rattles, then we get busy. Now, when the fixer has a flock of ribbers to look after and the mill is being pushed for deliveries, attending to little things and preventing trouble will give far better results than fixing machines to correct troubles. For today's production demands, it takes machines that will really stand the gaff; and today's machines will really do it if given half a chance.

The Dial Cap

From a purely mechanical standpoint, there is very little difference in the dial caps on rib machines of today. They operate on the same principle and have much in common as far as mechanical trouble, adjustments and repairs are concerned. Adding additional attachments such as yarn changing devices, plaiting attachments, French and selvage welt attachments, have brought about some changes in the design of the dial cap assemblies, still when they are considered in a broad sense the dial caps on modern machines differ little from those of some years ago.

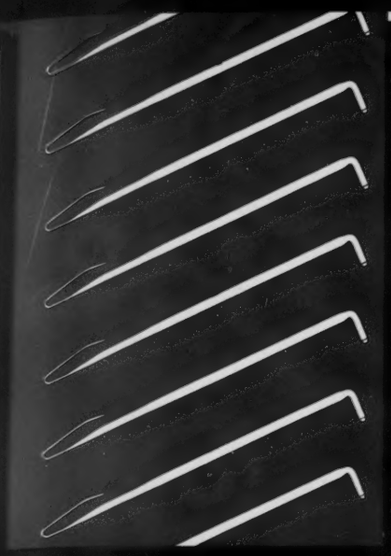
Regardless of make, all ribbers have dial stitch cams, center cams, swing cams, etc., and to operate any machine successfully these various parts must be kept in first-class condition. Waste, imperfect tops, broken needles, damaged dials and other troubles too numerous to mention can in many ways be traced to lack of attention to the various cams on the dial cap. Barring accidents or abuse the dial cap's worst enemy is of course every day wear and tear.

A careful study of the various everyday troubles is of the utmost value to the machine fixer in helping him to decide just what he can do to combat Old Man Wear to the fullest extent. One of the most effective means of preventing wear on any piece of machinery is a proper lubricating program. Just what do I mean by that? I mean simply this, first, find the right kind of oil to suit the individual needs—just any good grade of oil won't do. Second, see that it is properly applied in the right place and in the right amount. Third, do the oiling thoroughly and regularly. Simple, yes, but simple enough to be neglected by most of us.

Recently while visiting another mill I made it a point to question a rib fixer about his lubricating program and the conversation went something like this: "Who supplies your oil?" He named a reliable dealer who specializes in oils for the textile trade. "How many kinds of oil do you use?" "Just one, here it is." "You mean you use this oil for the whole machine, dial caps, needles, drive shafts, bearings, and everything from the legs up?" "Sure, it's good stuff." Well, as Andy would say, now ain't that sumpin'! But wait, get a load of this, my next question: "How often does your operator oil his machines?" "Once each day." "Did he oil up today?" (it didn't look like he had and it was almost quitting time.) He called to his operator, "Hey, did you oil up today?" "Hell, no, I've been too busy trying to keep these things turning."

Yes, Brother Fixer, that's what can happen and does happen if you let down. Your job is of course fixing machines, but seeing to it that they are oiled thoroughly and regularly will save you many a job.

Assuming that the lubricating program is up to par, we move on to the next step in keeping the dial cap assembly in good shape. Again we find ourselves fighting Old Man Wear, so on with the fight. Now, just what does it take to win the fight? It takes about a gallon of clear thinking, a gallon of sound judgment, a bushel of work, a pint of repair parts, and



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Torrington guarantees uniform dimensions by machine manufacture. The machines used in the production of Torrington Needles are consistently accurate even in the most delicate operations. And not only does machine precision assure uniform accuracy in length, width and thickness; it guarantees the same quality in temper, finish, strength and all other important factors.

Machine precision is the basis on which Torrington quality is achieved. It is the reason why Torrington Needles stand alone in knitting performance. Your knitting will benefit by the exceptional uniformity for which they are famous.

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4 Bars are straightened with a special device; brasses resurfaced; slots checked mechanically.

5 Bars filled with Torrington needles; straightened and gauged three ways; spaced also — by gauge.

6 Beards raised uniformly; checked by gauge for height and central setting.

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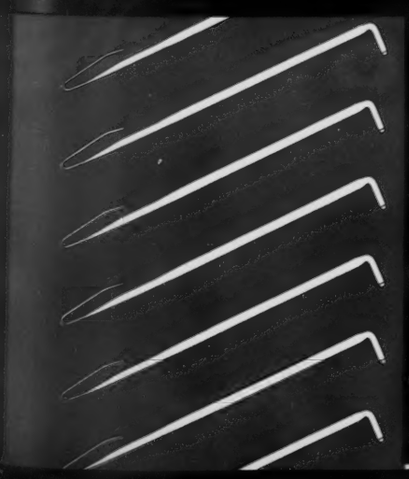

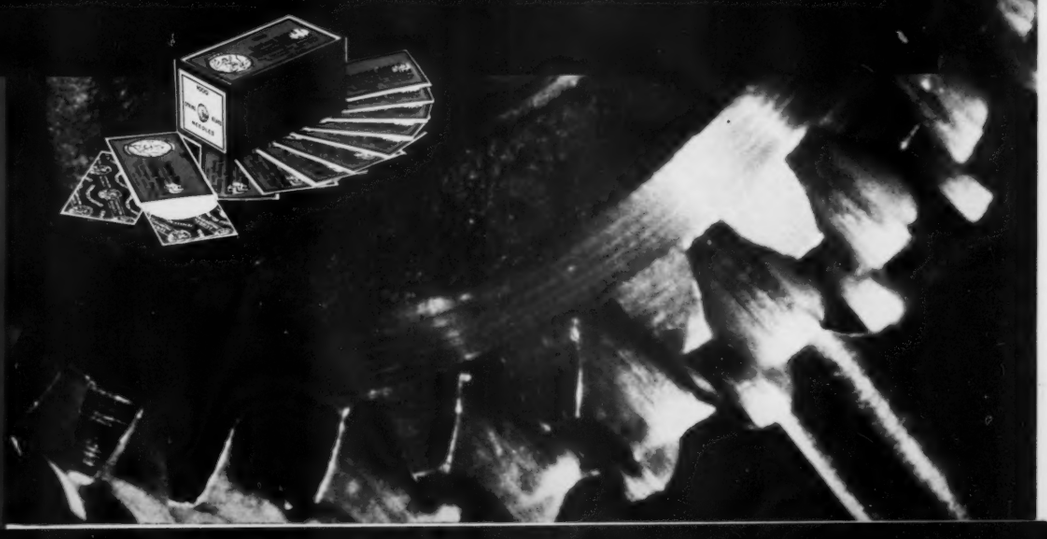

how much wiser it is to use

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Needles are doubly important as a factor in equipment because they are closer to the actual knitting operation than any other part of the machine apparatus. The needles are the implements by which the machine transforms the thread into cloth. Their quality demands your most serious consideration.

Torrington has gained the confidence of thousands of good knitters in every part of the world...by manufacturing needles that are strong, even-tempered, smoothly finished, uniform in every detail that counts in the production of beautiful fabrics. Try Torringtons—and discover for yourself how much wiser it is to use *uniformly good needles.*

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a good thick slice of the will to do. Kidding, am I? Not on your life. I am giving it to you right on the button. Too often we find ourselves using a scant pint of brain work, a quart of labor, and a bushel of parts. Yes, I'm guilty, how about you?

Since the dial cap is in constant use, it is only reasonable to expect that the various parts will become worn and in time give trouble. The wrong way to take care of it is to allow it to run until it literally falls to pieces. The better way is to take it down, go over each cam and repolish it carefully, being sure to remove all rough places so as to eliminate all unnecessary needle vibration. It is often necessary to grind cams in order to remove nicks; when this is done, be sure not to overheat the cams and draw out the temper. It must be kept in mind that dial cap cams are all made of good steel which on account of its hardness makes the cams easily burnt while being ground.

The three main cams on the dial cap are the stitch cam, the swing cam and the center cam. The two former will give more trouble than the latter. Most of the stitch cam troubles are usually caused by the cams becoming blunt on the point or becoming badly nicked, making it difficult to control the needles. Swing cams likewise become nicked in the needle butt race; their main trouble, however, lies in the outer edge of the needle race becoming rounded off, thus preventing the needles from moving out far enough. Swing cams also give trouble when their pivot pins become worn, which permits the cam to tilt when it moves in and out, thus causing the cam to bind against the dial instead of moving freely. Center cams are not very troublesome. They will stand a great deal of re-polishing before it becomes necessary to renew them. One thing to keep in mind in connection with dial cap cams is that the under side of the cams should all lie flush against the dial.

Constant repolishing brings on a variation in thickness of the cams which means that some cams lie flush on the dial and others do not, thus permitting the needle butts to rock. Laying a scale across the bottom of the dial cap will tell whether all cams are flush or not. In repolishing the under side of the dial cap cams, it is best to use a polishing disc which permits polishing the complete assembly in one operation and assures an even flat surface clear across the cap.

Dial cap troubles are often difficult to solve since it is impossible to see what is going on in the needle race. Not being able to see trouble means that the fixer must imagine trouble. He must be able to close his eyes and picture clearly in his mind just what takes place on the inside of the dial cap while the machine is in motion. The all-important thing in connection with keeping dial cap cams in good shape is to go over each cap at regular intervals and do a thorough job. It does not require a great deal of mental effort to determine how often it must be done, what it really takes is the will to do, sticking to a definite program day in and day out.

In the next article on ribbers we will consider additional parts of the dial cap assembly.

R. B. ORR.

WE invite our readers to make use of this department for the discussion of any and all problems arising in connection with the knitting mill from the office to the packing and shipping departments. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. All questions will be answered as promptly as possible. The names and addresses of the contributors must be given, but will be held in confidence and a pen name substituted when printed. All acceptable contributions other than questions will be paid for after publication. The editors do not hold themselves responsible for any statement of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

◆ ◆

More About "Heavying" Seamless Hose by Removing Chain Links and Loosening Stitch

Two previous discussions appeared on page 105, July issue, and page 115, September issue . . .

EDITOR COTTON:

I have just finished reading the question from "CONTRIBUTOR No. 6381" on page 137 of May COTTON regarding taking links out of a chain and its effect on the weight of the stocking.

The argument of his two old-time fixers, that lessening the number of links and making a longer stitch would make the stocking heavier if enough links were taken out and the same length of stocking made from the same denier rayon is somewhat old, but to my mind there has never been any foundation for it.

Taking links out of a machine and lengthening the stitch to compensate for this will naturally make the same difference in a stocking that exists between close weaving and open weaving in a woven fabric.

To simplify matters, let's assume that we are making a stocking to finish 30 inches with a total number of 100 links in the chain and that the yarn cost is $1.00. By taking out two links and not changing the tension, thereby making the stocking shorter, you will save exactly two cents in the yarn cost, but to take out two links and lengthen the stitches to make the stocking again finish 30 inches, we would not save the full two cents in the material cost, but the stocking would certainly be a fraction lighter, but the saving would be so small that I have never considered it worthwhile in view of the fact that taking out links and lengthening the stitches gives the stocking a sleazy appearance.

If any of your readers should happen to be in doubt as to the effect on the stocking of taking out links, I would suggest that they take out half the links and see what happens to their stocking. If taking out eight or ten links will make it heavier, as the old-time fixers seem to think, taking out 50 links and lengthening the stitches should practically double the weight, and of course any man giving serious thought to this could readily see that this would not be the case.

I trust that this simple explanation will make my views on this question clear.

CONTRIBUTOR No. 6395.

What About 3-Carrier Attachments from Practical Operating Standpoint?

EDITOR COTTON:

In connection with the manufacture of "ringless" stockings on full-fashioned machines equipped with the 3-carrier attachment, there are several points concerning this device which I would like to see discussed, from the manufacturing standpoint.

Is the percentage of seconds on the ringless type of stocking less than on the single-carrier type; if so, to what can this be attributed?

Are any mills using a lower grade of silk with the desired results; that is, are they getting less seconds if using a lower grade of silk?

Any other comments with reference to the mechanical operation of the 3-carrier principle will be appreciated.

CONTRIBUTOR No. 6420

More Methods of Handling Full-Fashioned Odds at Mating Table

Further discussions on a problem that is often perplexing to the full-fashioned mill . . . . . .

In answer to "CONTRIBUTOR No. 6363", whose questions appeared on page 109 of March COTTON, we know of no fixed or inflexible method of handling accumulations of odd stockings in a full-fashioned mill, accumulating at the mating operation. This problem will take on entirely different aspects as associated with different styles and constructions; the higher the quality the more care being required to make a final and the least expensive disposition.

Where the mating and inspecting is carried out in one operation, the mater will accumulate several different classifications such as holes, spots, irregulars and seconds. Holes and spots should be classified by the mater, and holes immediately assigned to the mending table and spots to re-dyes. Classification of irregulars and seconds can, we believe, be most intelligently handled by being left together so far as the mater is concerned, and re-inspected for final classification by an expert "second" girl.

Odd pairs and odd stockings of first-class quality will require various methods of handling. It frequently happens that two batches of the same size and color will be coming through about the same time, one following the other immediately. In such cases the odd stockings from the first batch can be placed on the following batch. Finally, when such batches are completed it may be necessary as a final and quick disposition to throw odd stockings into the re-dyes. Odd pairs of less than ¼ dozen where goods are being packed in ¼ dozens, or odd pairs of less than ½ dozen where goods are being packed in ½ dozens, can usually be assigned to stock bins, especially when such odds are regular standard colors. Where such odds are special colors for special customers and it is known that additional batches of the same colors will follow in a short time, such odds can be temporarily stored on a tray or in a bin to await arrival of additional goods of the same color and size.

Re-boards should always be a negligible item. In the first place, bad boarding should not be permitted to reach the mating table, but when it is found that a batch that has reached the table has been carelessly boarded it should be immediately wet out and returned to the boarder for re-boarding at his expense.

As stated in the outset, there can be no iron clad system for handling the different accumulations of odds and substandard stockings accumulated in the finishing room. Where goods are of very cheap quality, with a recovery price on seconds almost equal to that of first quality, it might be thoroughly advisable to do no more to odds than to throw them into irregulars. But even here spots or re-dyes and holes will be found, which will require special handling and which offsets the possibility of getting shed of the proposition by doing no more work than throwing them into seconds.

With merchandise of high quality, where a single odd stocking may have a value of 50 cents and up, or a single pair $1.00 and up, it can readily be seen that much loss can be entailed by handling such quality merchandise in a manner other than the most intelligently possible way of salvaging their full value. This cannot always be easily done, and we know of no system that will supplant the careful personal attention of some intelligent individual whose duty it shall be to be responsible for such odds and to see that the highest possible value is saved at the lowest possible cost in disposing of such merchandise.

CONTRIBUTOR No. 6365.

EDITOR COTTON:

This replies to the inquiry of "CONTRIBUTOR No. 6363", who asked in a recent issue for the practices of different full-fashioned mills as to handling the accumulations of odd stockings at the mating operation.

I am glad to outline our procedure, in answer to his question, as follows:

1. It is the pairer's job to properly classify all hosiery from the given lot, as to first quality pairs, irregular pairs, seconds, second pairs, perfect odds, irregular odds and thirds.

2. All menders which may be classified as such by the pairer are mended and returned to the pairer for proper classification as above stated. At this point this lot may be checked and the pairer relieved of same.

3. The perfect odds, irregular odds and thirds are then turned over to three separate girls whose job it is to collect all such work from the various pairers who may be working on this one lot and to re-mate and re-board them in order to bring any such odds down to a minimum.

We find that by following this process our odds are reduced to a very low percentage and any such odds as we may have we are able to group with similar colors and re-dye them to a slightly darker shade.

CONTRIBUTOR No. 6379.

(*) A previous detailed discussion of this question appeared on page 187 of the April 1935 issue of COTTON.—THE EDITOR.

Whether it's AIRPLANES

MODERN EQUIPMENT *Gets the Business!*

APPEARANCES are deceiving. The transport planes of 1929 still look surprisingly trim and efficient, and many are still in good mechanical condition, yet their days of flying on major airways are over.

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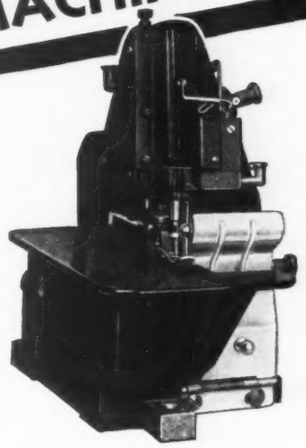

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THE KNIT GOODS MARKETS . .

Philadelphia, Pa., October 16, 1935.

SPURRED ON by a continued advance in the raw silk market, which has been an outstanding development in the textile industry during the last few months, retailers and wholesale distributors of full-fashioned hosiery placed the largest amount of business during recent weeks of any similar period of several years. This has placed these manufacturers in a comfortable position so far as advance goods orders in hand are concerned, many reporting that they have enough for the balance of the year. While the bulk of this business was placed just prior to the advance in full-fashioned made last month, which averaged 25 to 50 cents a dozen pairs, quite a few orders have been placed at the higher range.

With indications raw silk will continue strong and manufacturers well sold ahead, the full-fashioned hosiery situation has swung more strongly in favor of sellers than for a long period. The silk market, following the rapid upturn of the previous month, has advanced approximately 25 cents a pound since the middle of September. Silk prices are approximately 80 cents above the 1935 low and they are almost a dollar a pound higher than at this time a year ago. Hosiery manufacturers say that with such a situation confronting them in the raw material market, it will be necessary for them to place still further advances in full-fashioned in effect in the near future.

It is now certain that practically every well organized mill in the country will run through the balance of the year on full time schedules. Some manufacturers of cheaper priced full-fashioned half hose are also practically sold for the remainder of the year. Mills running on children's fall hose are still behind in deliveries and pushing production to the limit. New orders in infants' and misses' anklets and infants' socks for spring are developing satisfactorily.

Some manufacturers of full-fashioned goods that did not cover on raw silk are finding themselves now in an embarrassing position. It is felt that a number of smaller manufacturers have been caught in this position and there is no doubt but that the drastic advance in silk has created a difficult problem for the full-fashioned manufacturer who buys from hand-to-mouth.

Notwithstanding the advances of 25 cents to 50 cents a dozen placed in effect last month by manufacturers of unbranded full-fashioned hosiery, makers of branded lines have been slow to follow and to date several of the larger firms of this type have only increased the prices of their lower quality lines. There is talk in the trade of additional advances to be made by makers of branded lines but nothing tangible has developed along this line.

Considerable speculation is being indulged in as to the reasons for this. In some sections of the market it is pointed out that branded mills generally are understood to be well covered on raw silk at prices considerably under the present market and it is thought by some that they may be indulging in something of a squeeze play on unbranded manufacturers. One manufacturer of branded goods said this had been a factor in their policy but another was their belief that it is a little early to make any important change in their retail selling prices.

There has been no indication in the retail selling level as yet of advances in hosiery prices named by manufacturers during recent weeks but manufacturers believe that when their present low-priced contracts have been filled and the retail market works its way closer to a replacement level, there will be no consumer resistance against slightly higher full-fashioned prices. Indications are the ultimate consumer will be able to buy cheaper hosiery for the balance of the year at least at approximately the same prices that have been current during the year to date. Early next year it is expected higher silk and full-fashioned hosiery prices will bring this about and manufacturers say they do not expect to meet resistance in view of the very low prices they have been receiving for a long time.

Most manufacturers in this section are running full time day shifts and many have resumed night work to catch up with orders. Reports from some mills are that they have been literally swamped with orders and buyers have been notified in such instances that shipments on dates specified may not be expected. Several of the larger full-fashioned mills here are on an allotment basis, having to cut down the size of orders here and there.

Among branded mills a situation has arisen that has not been seen for a long time. Retail buyers, on the strength of warnings that prices were to go up, rushed in the market and bought ahead as far as permitted. It is now felt in selling circles that some of these retailers over-bought, but most in this position are content with their investment and with having the goods in hand. They prefer to take their chances with slightly larger inventories rather than to be unable, like some of their competitors, to obtain any merchandise from well sold ahead manufacturers.

How much merchandise remains to be covered for the balance of the year is still an open question. A number of buyers of all types, retailers and wholesalers, as well as chains, are understood to have bought practically all the goods they will need this year. Sellers are confident, however, that there is a considerable volume yet to be placed during November. The slowness with which makers of branded full-fashioned hosiery have placed their advances in effect is creating attention in the trade. The rise in branded goods got under way late in September when Julius Kayser & Company advised customers to this effect.

This action followed an advance on unbranded line that began September 3, bringing unbranded prices to approximately 25 cents a dozen above their July lows and more on low end goods. In its letter to the trade, the Kayser Company suggested that new retail prices be effective October 15, bringing their 79-cent numbers to 85 cents a pair. While prices are subject to change without notice, this firm is taking business for delivery to November 30. It also stated that while for the present they were only advancing prices on the low-end numbers, it was apparent that the whole hosiery picture was changing and that a complete adjustment of values and prices upward would no doubt follow.

The advance in raw silk has done more than merely strengthen hosiery prices. The rise has created a difficult situation among some mills that took low-priced orders too liberally at the former lows. As a result these mills are now in a quandary over delivery of goods into which high priced silk is entered, but which were sold at low prices. It is reported that some of the apparel and shoe chains which bought low-end full-fashioned goods for October and November delivery at the lowest prices were asked by the manufacturers involved to reconsider the price question in the light of the rapid advance in raw silk but buyers are reported to be firm to the point of threatening to start suits unless the goods are delivered as scheduled at the old prices.

Manufacturers in this position made their original mistake in a desire for business at almost any price. The larger manufacturers operated more cautiously as a rule, establishing limits as to delivery dates on goods at the old prices but many smaller mills eager for business and for a continuance of their control of market prices had a tendency to rush blindly into the traps that buyers laid for them.

The fallacy of a distribution policy that entails selling only to a few large accounts is thoroughly demonstrated by the present situation. Few of the largest manufacturers have operated successfully on that basis and for the average small mill it is a path to eventual heavy losses. Yet many small hosiery manufacturers have taken a try at the idea in the last two or three years, in a declining market they have had much to gain and very little to lose.

The present upward trend of raw silk prices, however, has caught them. If they cannot or will not supply the big accounts with goods as ordered, they stand to lose heavily by a change in distribution in the midst of the season. If they supply the goods, on the other hand, they likewise lose through high material prices. Such merchandising tactics are a gamble and for some of the smaller manufacturers the showdown has come. On the other hand, manufacturers are aided in the present active market by freedom of worry from strike trouble. The few strikes in progress at the minute are isolated and unimportant.

The sole issue of any consequence is the one concerning the union scale on double-shift footer operations but before it can be developed into a sizable problem, the season will

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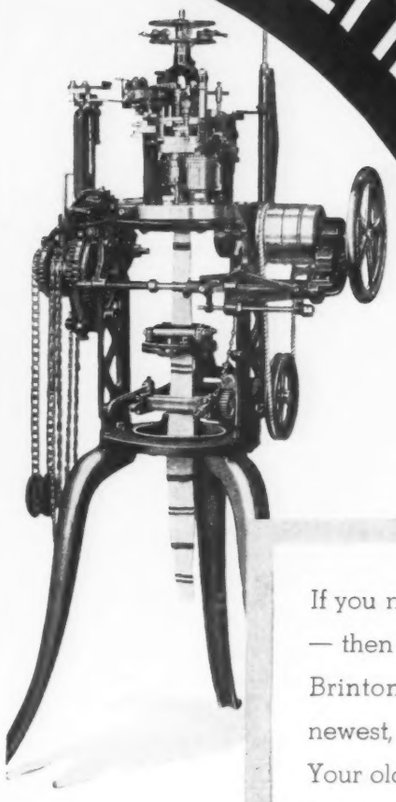

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have reached its peak. However, the mere fact that labor is throwing no obstacle in the manufacturer's return path has led to some speculation as to the year-end condition of stocks at the mills. It is generally agreed that production was boosted sharply last month and will continue on a full-time basis this month and November. Yet much of the buying that ordinarily would take place in November, has already been placed. While most of the orders call for October and November shipments, there were many commitments calling for immediate delivery placed late last month.

The question now is, will there be sufficient business in November to take care of later production? Many feel there is at least a possibility that the mills may run full blast into December in the belief that the record shipments of the previous two months will be continued. There are some far-sighted mill men who fear this may be the case despite the evidence that no such new business volume can be maintained through the final month of the year. Recalling past year-end statistics, they feel they have good reason to wonder about the situation and its probable influence on late December and January prices. These factors are not in agreement with many others who are strongly of the opinion that the current rush of business will take up all their production until the end of December. While it appears fairly certain that acute shortages on some of the more popular lines may develop this month and next, it is felt that such scarcities will be wiped out well before the final shipments for the holiday season.

This gives a minority in the trade the idea that it might at least be well to begin to think of curtailment about November 15, to begin about December 10 and continue through the middle of January. In this manner alone, they feel, the industry can avoid another plunge such as it took on entering the past summer season with heavy stocks.

The upward trend in full-fashioned hosiery has had a beneficial effect on other parts of the industry. Ladies' seamless lines have become stronger and more active. Men's hose and children's lines likewise have been firmer with advances on some numbers. Deliveries on boys' golf hose are reported to be still slow and in the children's ribbed goods such as 300-needle numbers, which were unsteady for a time, price advances on lines that were below the market have straightened out this situation. Jobbers, who a short time ago were able to get this merchandise at a dollar a dozen, now find manufacturers asking $1.10 to $1.15.

In men's hose there are new reports of increasing competition from similar numbers imported from Japan. The Japanese imports concern rayon plaited fancies as well as the random numbers mixed with Celanese that sell actively at this time of the year. Jobbers who have held their purchases of the random numbers to domestic goods find that the lower prices on Japanese hose are making keen competition.

One wholesale distributor is importing and selling large quantities of rayon plaited socks in attractive fancy patterns and at prices that allow retailers to put them out at special sales as low as 10 cents a pair. These numbers are understood to be boxed merchandise, and not the usual bundle goods, such as most of the Japanese imports.

A steady improvement in the quality of the imported Japanese goods is in evidence, sizes being more satisfactory than at first and what is more important, the patterns are new and attractive under the tutelage of American buyers who have gone into the import business in a serious way, manufacturers in Japan are still steadily meeting the style end of the situation in a more skillful way.

Large users of full-fashioned goods are speculating on how long it will be before manufacturers in Japan get into this end of the business in a serious manner. With the important raw silk product of their own country available at first-hand, it is expected that they will look into the proposition seriously.

Hosiery production by 341 concerns, representing 405 mills, was over 1,000,000 dozen pairs better in August this year compared with the same month a year ago. The total production of all kinds this August was 6,428,786 dozen compared with 5,412,244 dozen a year ago. Orders booked as well as shipments showed a substantial gain this year over 1934. Orders booked this August amounted to 7,597,751 dozen compared with 6,102,690 dozen last year and the net shipments this August were 7,003,677 dozen compared with 6,309,444 dozen a year ago in August.

Of the different types of hosiery, women's full-fashioned led with 2,469,032 dozen compared with 1,825,880 dozen for August of last year. Men's seamless goods were next, the total output being 2,218,790 dozen this August against practically the same figure a year ago. Boys', misses' and children's were next in production, the August figure this year being 825,439 dozen compared with 634,667 dozen a year ago.

Orders booked in August on women's full-fashioned hosiery were 3,319,306 dozen, which was a gain over the 2,385,094 dozen a year ago. Shipments of the full-fashioned goods for the month were 2,575,631 dozen compared with 2,091,559 dozen for the same month in 1934. The cotton and wool mixed hosiery amounted to 353,493 dozen this August compared with 352,206 dozen a year ago. In rayons, including lisle or cotton tops, the month's output was 835,576 dozen compared with 785,775 dozen a year ago.

The National Association of Hosiery Manufacturers is proceeding to bring to a close its effort to establish standards of construction and inspection for ladies' full-fashioned hosiery. Following a special conference on the proposed standards held in Philadelphia last April, at which a very pronounced majority registered themselves as in favor of these standards, action on them was allowed to rest for two reasons. First, the unexpected termination of codes at the end of May and second, it was felt that the subject should not be resumed until after the summer months.

The association states "the standards in final form have been generally recognized by both the manufacturer and the customers of the industry as simple, sound and practical. Their general adoption will be another forward step in the direction of stabilizing the values of our product. It is a healthy thing for an industry to initiate and carry out such efforts itself, thus avoiding outside pressure which while well-intentioned, are usually impractical and result only in embarrassment and misunderstanding.

"It is very gratifying to know that the correspondence of the association during recent months has shown a general appreciation on the part of the responsible type of manufacturers both large and small of the benefits which came to this industry by virtue of that code provision which provided for the marking of irregulars, seconds and thirds of hosiery as such." The association points out that when these standards are finally adopted and put into effect they will contribute towards maintaining the marking provisions in force and it adds one result of this will be that manufacturers' as well as buyers' rights will be more fully protected.

Underwear manufacturers are starting the new spring selling season cautiously, giving the impression that they are uncertain as to the course they should follow in looking for business so far ahead. The prices already announced also show considerable indecision. Some of the buyers in the market said they came here looking for slight price advances and they have been surprised to find slight concessions amounting to about five per cent on some underwear numbers.

The fact that certain large selling numbers such as men's athletic shirts are quoted slightly cheaper for next spring than for the past season is an example of this. With the future uncertain in connection with the processing tax and other government policies, and with costs to be increased after the first of the year by the pay roll tax of 1 per cent to cover the Social Security legislation, the sentiment had been in the direction of at least equaling this past season's prices or making slight advances on certain combed athletic shirts. The manufacturer's explanation is that the spread now ruling between carded and combed yarns is less than formerly, thus permitting slightly lower costs.

Some manufacturers, however, that made close prices this year on combed athletic shirts, will hold to the same prices for next year and thus try to make up for the low prices of this year. The fact that carded yarns show only a slight recession from last year has also been pointed out as a factor that permits of no considerable lowering of new quotations. The light weight underwear numbers use carded yarns running from 20s to 30s and combed yarns usually 36s and 38s.

The most serious inquiry in the spring line so far has been made by several of the chains and the mail order houses. The latter have to provide for their early season flyers, which are published in December and cover merchandise to be offered in January. Several of the chains similarly buy some early spring merchandise while holding off on the bulk of their early 1936 purchases until later. On the basis of prices and values many well informed factors in the underwear trade feel that buyers should operate

(Continued on page 116)

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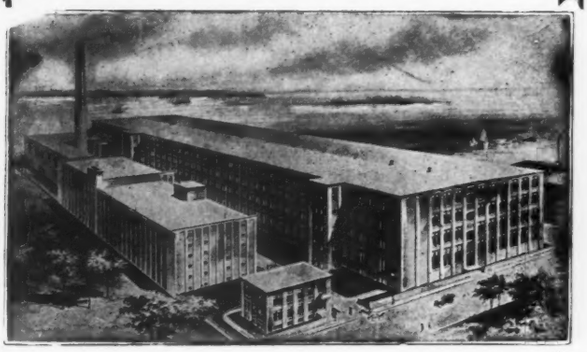

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REVIEW OF THE YARN MARKET

Philadelphia, Pa., October 16, 1935.

SINCE the middle of September cotton yarn spinners have experienced the largest volume of orders of any similar period this year. The spurt has been felt by producers of all types of yarns, carded, combed, mercerized and worsted, and as buying increased, the price trend upward has quickened although at present some spinners, both in the cotton and worsted sections, report that manufacturers are showing slightly more caution in making new commitments than a month back.

Not only have spinners enjoyed the heaviest buying of the year to date, but what is more important from their viewpoint, they have succeeded in widening the margins on which they work, which have been small or non-existant in the last few years. They began to widen spinning margins, the spread between yarn selling prices and the price of cotton, immediately after the cotton drop on news of the government's loan plan, giving growers 10 cents plus 2 cents instead of the former flat 12-cent loan. At that time cotton dropped but yarn prices held steady and since that time yarn prices have been advancing more rapidly than the raw material market.

Raw cotton has advanced approximately one-half cent since the middle of September and during this time carded yarn producers have advanced their prices from one to two cents a pound and combed spinners have placed in effect increases of two cents and more. A month ago knitters were being quoted ordinary grades of carded yarns on the basis of 26½ cents basis for 10s; at this time the same yarn is held at 27½ to 28 cents, with extra carded quoted one cent above this level and double carded a cent and a half to two cents higher.

An outstanding development during the last month has been the exceptionally large demand and sale of single combed yarn which has been taken by knitters for use in making underwear, infants' goods, polo shirts and knitted pajamas. Spinners of single combed yarns state that they have experienced the best demand during this period for many years, one of the largest combed groups in Gaston County reporting that new business and shipments have been at record-breaking totals for eight years.

One of the main reasons for the large demand of combed knitting counts during recent months has been the attractive prices which combed spinners quoted in comparison with quotations named by spinners of carded qualities. Until the last increase in prices, the difference between carded and combed was not more than two cents a pound, when good quality yarn was involved. Under these conditions many underwear manufacturers turned from a carded to a combed garment. This advantage enjoyed by combed spinners is not quite as great as it was, combed spinners having recently placed in effect larger advances than were named by carded spinners. At the present time combed spinners are quoting on the basis of 40 cents for 30s single while carded yarn producers are quoting this same count on the basis of 35½ cents.

Another feature of the market during the last two weeks has been the extensive contracting in mercerized yarns, coming from knitters in practically all trades. Mercerizers report bookings for the largest volume of business during this period that they have seen in any like period for several years. In many instances manufacturers have placed contracts for these yarns running into March of 1936. Prices of mercerized yarns are stronger but the quotation level has not been changed by the leading producers, remaining at 70 cents for 60s two-ply.

The drastic advance in raw silk and thrown silk has been an important factor in bringing about a resumption of quality buying in mercerized. Producers of these yarns say they have noticed a gradual increase in interest since the advent in silk got under way, coming especially from manufacturers of full-fashioned hosiery. Many of the latter manufacturing a low-priced line of hosiery find that they can no longer turn out an all-silk hose and pay the higher silk prices if they are to continue their lines in the same price bracket. To get around this situation, many of these concerns have switched over to the use of a mercerized top and foot. Large demand for mercerized has also been noted from manufacturers of infants' hose and indications are that this trade, which has been using mercerized to a large degree, will carry on this policy in its 1936 lines.

The large amount of buying that has occurred during the last few months has changed the character of the yarn market definitely. Manufacturers are finding it difficult in many instances to obtain early deliveries which they had been able to do heretofore. Many carded yarn spinners and most combed mills are well fixed for business for the next two months. In the case of spinners of single combed, they are unable to promise large deliveries on new contracts until December. This is a situation that requires study from manufacturers that do not spin their own yarn and is in contrast to conditions that have existed for several years.

Manufacturers are less concerned than any time this year, so far as yarn purchases are concerned in the matter of processing tax refunds. As business has improved with manufacturers and spinners both sides are showing a disposition to allow their rights to settle on the processing tax clause agreed upon by spinners at their August 5 meeting and by manufacturers through instruction from their respective trade associations. The long contracts placed in single combed and mercerized have had this standard clause included.

Indications are that yarns will hold firmer than the raw material during the remaining months of this year. Since the beginning of August spinners have held yarn prices steady or even advanced them during declines in the raw material market. Spinners' margins are at the best level for several years and their attitude now is that after many years of no-

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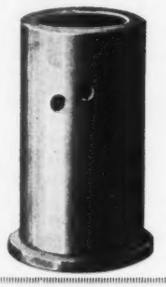

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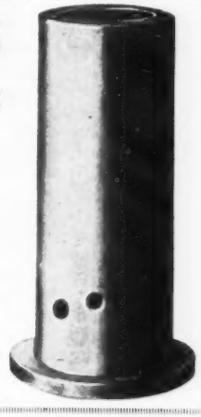

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profit business, they are going to take every advantage of the present sellers' market to merchandise their products on a profitable basis.

Worsted yarns have been especially strong in the last month, counts used by the knitters are from 10 to 15 cents a pound higher than a month ago. Spinners of this type yarn are also well sold ahead for the remainder of this year. Outerwear manufacturers are rushed with orders on their fall and winter lines and have until the last increase in yarns been buying heavily, both manufacturers and spinners experiencing the most active demand for several years. The present and higher prices of worsted yarns, which are 35 cents a pound higher than the 1935 lows, are expected to result in many manufacturers turning from worsted to at least part cotton. In fact, a number of spinners of worsted yarn are now getting out samples for the next season, composed of one thread of worsted and one thread of cotton which they will sell at approximately the old price of all-worsted.

The Knit Goods Markets

(Continued from page 112)

early in next spring underwear. Manufacturers of such lines have not only kept down their quotations, but they are offering improved values, or in other instances, they have added new numbers that make for excellent qualities that can be sold for attractive prices.

There will be more combed numbers in men's underwear for next year than ever shown before. This is due to the proportionately cheaper prices of combed yarns compared with carded numbers. While some lines already priced are quoting men's combed athletic shirts the same as a year ago, others are down 10 cents a dozen. The combed shirt styles vary greatly and standard numbers of two and one-quarter to two and one-half pounds per dozen are expected to be available at $2.00 per dozen and under. The lighter shirts of one and one-half pounds will be proportionately cheaper. One leading line of men's underwear is showing an athletic shirt number bearing a part combed label, which is something new. In the carded numbers of men's athletic shirts, some prices are 5 per cent off with prices running from as low as $1.00 a dozen upward.

A well-known New York knitter is showing a combed balbriggan shirt and drawer at $3.50 a dozen. Carded union suits of ribbed construction, which are still an important spring item in various sections of the country, are quoted at $4.50 a dozen with some mills even below this figure. It is taken for granted that larger buyers among the mail order houses and chains will operate reasonably early in next spring goods. The attitude of jobbers is not yet known. It is quite likely that they may soon become aware of the attractive prices being named by manufacturers and decide to place business for another season. The sentiment throughout the market is that prices should strengthen in the near future, other lines of cotton textiles being much firmer than knitted goods. It is reasonable, underwear manufacturers claim, that their product should advance to more reasonable levels.

Buyers are so confident of another big season in men's and boys' polo shirts that they are already operating for next spring. Not alone are the larger buyers interested, but some smaller operators likewise have begun to place orders. Both cotton and rayon numbers are being offered and sold, the rayon numbers being priced as low as $4.50 per dozen for the regular finish with $1.50 added for the slide fastener front. The market is convinced, however, that the slide-fastener finishes will not prove to be important factors another season. Button and laced effects are shown mostly and are getting the call. As in underwear, combed numbers in the polo shirts will be more numerous. There will be some plain mesh knit polos sold, but the larger business is looked for in the fancy knits on the dish rag order and similar stitches.

Not only are underwear mills showing polos, but more of the shirt makers are entering the field for next spring. Some of the largest of these have been forced into the business because of the competition of sport shirts with the regular dress shirts. These shirt manufacturers have been compelled to turn to the underwear manufacturer or to the commercial knitter for cloth. There has been a good volume of business in heavy-weight merchandise and on some lines mills are now being rushed by jobbers in need of merchandise that should have been ordered a long time ago.

The outlook now is that for the balance of the year a good part of the heavy-weight industry will be busy on reorders. Heavier items in men's underwear, such as cotton fleeced union suits are not being re-ordered by the jobbers in as large volume as mills would like to see. Yet the demand for seconds in these lines is very active, but as there can be no seconds without firsts, much of this business has to be put aside for future shipment.

Concern over the situation in the underwear industry in connection with its next season, particularly the low prices being quoted on men's athletic shirts, is expressed throughout the market. This year the situation is aggravated by the fact that not only have many manufacturers started out with surprisingly low prices, all the more dangerous because the uncertainties in selling goods so far ahead as next spring delivery are greater than usual, but also by new legislation. The Social Security Act cannot help but increase costs.

The Underwear Institute, realizing the situation, went into the matter of costs, compiling statistics to show graphically increases this year over three years ago. These were sent to the trade in a special letter by Roy A. Cheney, managing director of the institute, which said in part "a very serious situation confronts our industry and unless each manufacturer takes very careful thought on the matter, I cannot see anything ahead of us but a lot of trouble."

The letter pointed out to underwear manufacturers that compared with 1932 quotations of 22s carded cones prices this September were 74 per cent higher; worsted yarn prices over the same period were 51 per cent higher; raw silk prices increased 30 per cent over the period, during which time there was a decrease of 11 per cent in the prices manufacturers are now paying for rayon yarn. It stated in 1932 the underwear industry paid an average hourly rate to labor of 29 cents. In 1935 the hourly rate was over 39 cents, an increase during that period of 36 per cent. In 1932 the industry averaged 38 hours per week; in 1935 it averaged 32.8 hours per week, a decrease during that period of 14 per cent in the productive hours of work. Underwear prices from 1932 to September 30th, 1935, have only increased on the average of 14 per cent. "Based on these average figures, is it possible," it asks, "for the average underwear mill to stay in business?"

The cost of maintaining the Social Security Act, which begins for manufacturers on January 1st, 1937, presents another reason why underwear producers must secure higher prices for their spring merchandise. Advices to the trade along these lines have also been issued by the Underwear Institute. This organization stated that a two-fold influence toward higher underwear prices must be anticipated from the application of this act. Not only will underwear mills feel the direct effect on their own mill operations from the application of the tax, which ultimately will amount to 6.3 per cent on pay rolls, plus all additional bookkeeping and overhead expense involved in collection from employees, but yarn and other raw material prices will also reflect the advanced cost of manufacture.

Mills were advised to consider both these influences, in quoting prices on spring merchandise or face the alternative of going into the red. They were advised not to make the mistake of advancing prices only enough to care for their own higher costs and later waking up to the responsibility of absorbing the increases which can be expected in material prices.

Underwear manufacturers in the past have leaned over backwards to absorb as much as possible the rising costs of manufacture that have been incurred through the various recovery measures projected by the Administration in the past three years. The net result is that they now face the absolute necessity of passing on any further advances. Federal statistics show that wholesale commodity prices have advanced 24 per cent from 1932 to the present, while underwear prices have advanced only 14 per cent or insufficiently to match increased manufacturing costs.

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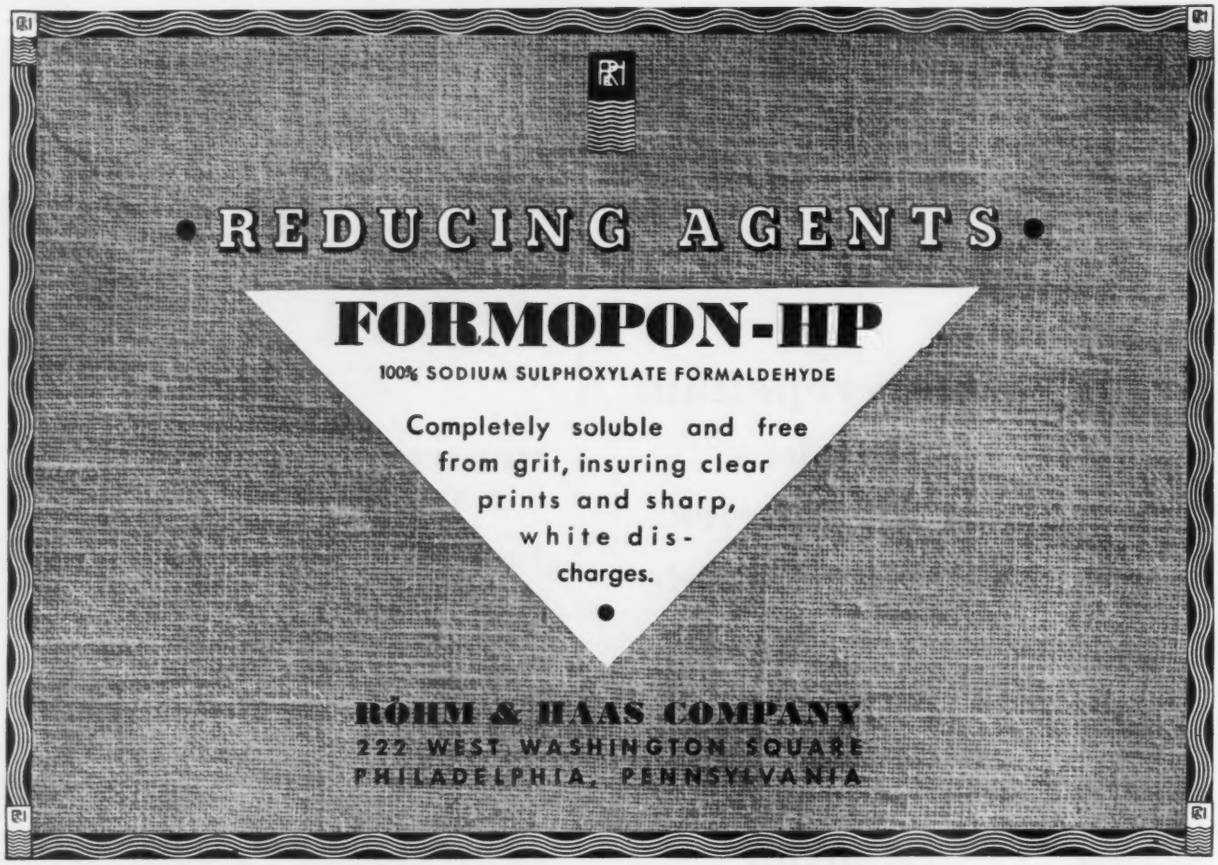
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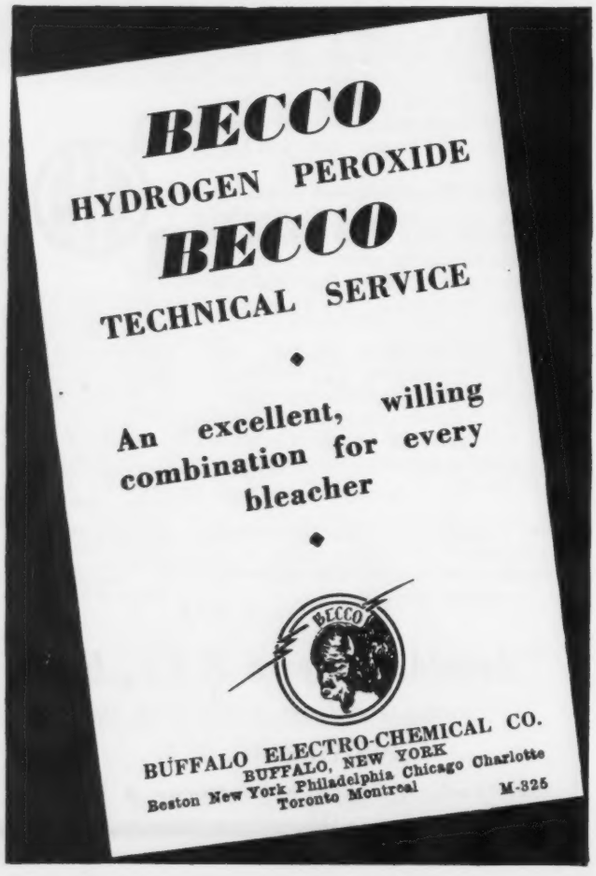

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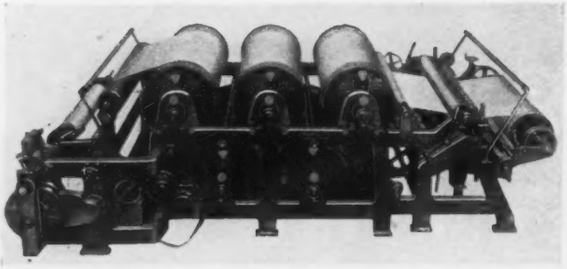

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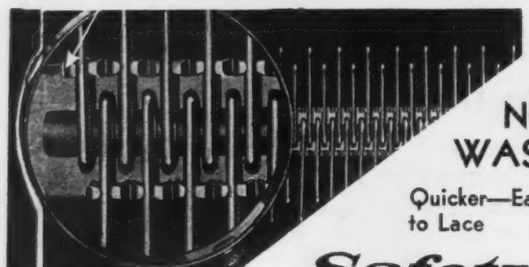

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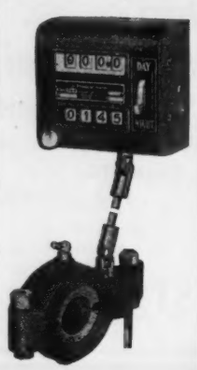

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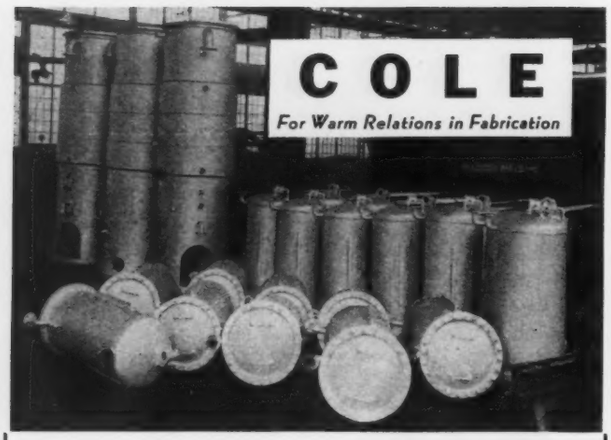

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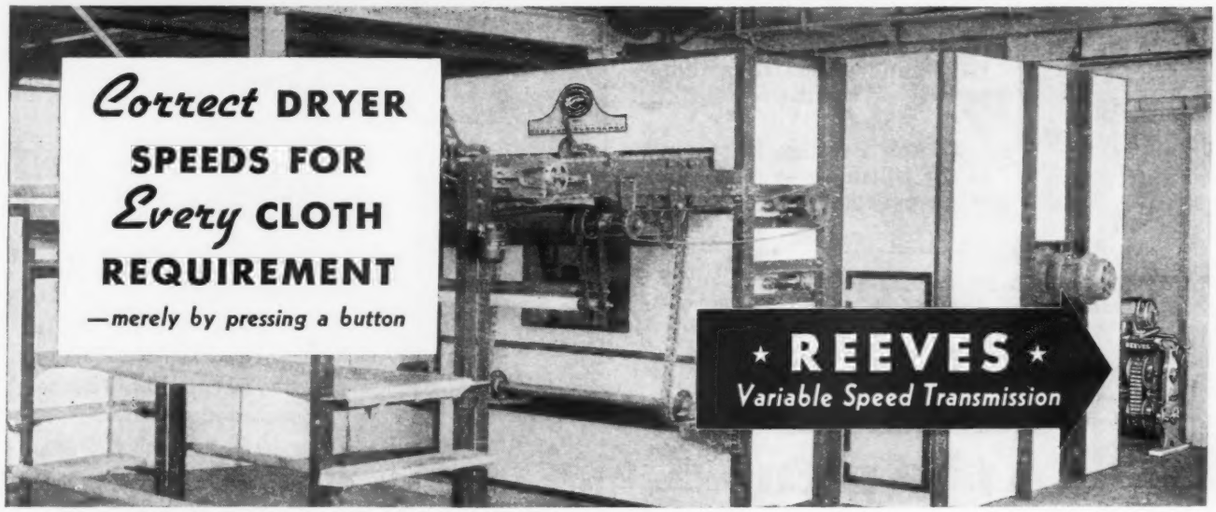

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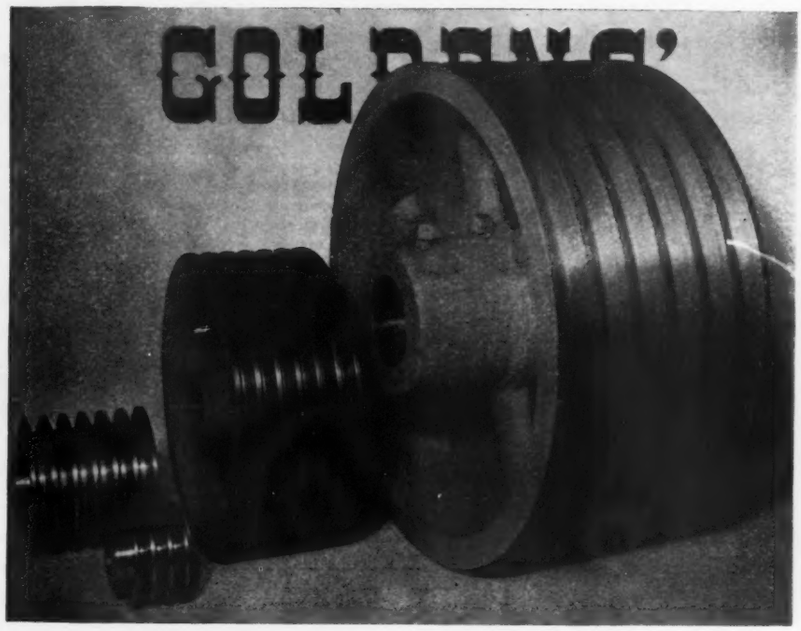

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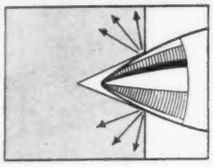

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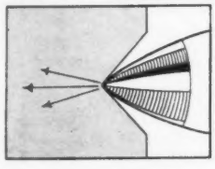
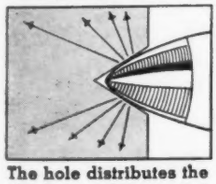


What happens when it is shaped by machine.



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